RAILROAD GAZETTE

FRIDAY, AUGUST 25.

Train Accidents in July.

The following accidents are included in our record for the month of July :

REAR COLLISIONS.

On the afternoon of the 4th a passenger train on the Pennsylvania Railroad struck the rear car of another passenger train which had gone upon a siding at Moorestown, N. J. The train was unusually long, and the siding would not hold all the cars, but the opposing train, which did not stop at that point, came along before a signal could be sent out. The car was damaged.

On the morning of the 8th a freight train on the Hannibal & St. Joseph road ran into the rear of a preceding freight near Salt River, Mo., in a heavy fog.

Early on the morning of the 8th a freight train on the Chicago, Rock Island & Pacific road ran into another freight, which was backing into a siding at Ainsworth, Ia. The engine and three cars were wrecked.

On the morning of the 9th a coal train on the Pennsylvania Railroad broke in two near Mifflin Cross Roads, Pa., and the rear section ran into the forward one, wrecking several cars. Two tramps, who were stealing a ride, were caught between the cars and killed, and a third was hurt.

On the afternoon of the 9th a freight train on the Evansville & Terre Haute road broke in two near Purcell, Ind., and the rear section ran into the forward one, wrecking several cars. Two men, who were stealing a ride, were caught between the cars and killed, and a third was badly hurt.

On the morning of the 10th a passenger train on the Chicago, Rock Island & Pacific road ran over a misplaced switch and into a freight train standing on a siding near Oskaloosa, Ia. The engine and two cars were damaged.

On the night of the 13th a freight train on the Grand Trunk road ran into a preceding freight near Berlin, Ont., and the engine and two cars were damaged.

On the night of the 15th a passenger train on the Texas & Pacific road ran over a misplaced switch and into a freight train standing on a siding at Baird, Tex. The engine and several cars were damaged. A passenger, who was standing on a platform, was thrown between two cars and killed.

On the night of the 17th a stock train on the Atchison, Topeka & Santa Fe road ran into a car which had, in some way, been run out of a siding on the main track at Derby, Kan. The engine and three cars were damaged, and the engineer killed.

On the afternoon of the 18th a freight train on the New York, Lake Erie & Western road broke in two in the Bergen Tunnel, N. J., and the rear section ran into the forward one, doing a little damage.

On the evening of the 21st a freight train on the Philadelphia & Erie road ran into the rear of a preceding freight, which had stopped at Warren, Pa., but had sent out no signal. The caboose was wrecked, the engineer killed, and a brakeman hurt.

Very early on the morning of the 23d a freight train on the St. Paul, Minneapolis & Manitoba road ran into a preceding freight near Darwin, Minn., damaging three cars.

On the afternoon of the 23d a freight train on the New York, Lake Erie & Western road ran into a preceding freight, which had stopped at Sufferns, N. Y., for water. The engine and seven cars were damaged.

On the night of the 24th a passenger train on the Illinois Central road ran into some cars which had broken loose from a preceding freight near Irvington, Ill. Two cars were wrecked, the engine damaged, the engineer and fireman hurt. The freight sent back a signal, which was not seen until too late.

On the evening of the 25th the engine of a passenger train on the Manhattan Elevated road suddenly started off from a siding at Morris street, in New York, ran out on the main track and into the rear of a passenger train, damaging two cars.

On the afternoon of the 27th a passenger train on the Prospect Park & Coney Island road ran into the rear of another passenger train near Gravesend, N. Y., damaging a car and injuring a brakeman.

On the morning of the 31st two freight cars on the Louisville & Nashville road broke loose in Nashville, Tenn., and ran a short distance down grade, striking a passenger train and doing a little damage.

On the morning of the 31st a passenger train on the Baltimore & Ohio road, backing up to make room for another train, at Bellaire, O., backed into a freight train waiting on the track. A passenger car was badly broken.

BUTTING COLLISIONS.

On the morning of the 3d there was a butting collision between a special passenger train and a wild engine on the New York & New England road near Fishkill, N. Y. Both engines were badly damaged.

On the afternoon of the 6th some cars broke loose from a freight train on the Ohio Central road near Mt. Gilead, O., and ran back at a high speed down grade and into a following freight. The cars were wrecked.

On the night of the 6th there was a butting collision between a Lake Erie & Western and an Indiana, Bloomington & Western freight train in Bloomington, Ill., doing a little damage.

On the morning of the 20th there was a butting collision between two freight trains on the South & North Alabama road near Birmingham, Ala. Both engines were damaged.

On the afternoon of the 20th there was a butting collision between two freight trains on the Evansville & Terre Haute road near Ft. Knox, Ind. Both engines were completely wrecked and 20 cars piled up in a bad wreck. One trainman was fatally injured and four others less severely hurt. It is said that the accident was caused by a misunderstanding of orders.

On the afternoon of the 20th there was a butting collision between a coal train and a construction train on the New York, Ontario & Western road near Norwich, N. Y. Both engines and 15 cars were badly broken. The coal train was under orders to meet the other train at the next station.

On the morning of the 23d there was a butting collision between two freight trains on the Chicago & Alton road near Towanda, Ill., by which both engines and several cars were damaged and a brakeman killed. The wreck caught fire and six cars were destroyed. It is said that one of the trains was signaled at Towanda, but did not stop.

On the morning of the 23d there was a butting collision between a freight train and a wild engine on the New York & New England road near Putnam, Conn. Both engines were damaged and a fireman hurt.

On the morning of the 24th there was a butting collision between a passenger and a freight train on the Central Vermont road near Bethel, Vt. Both engines were damaged.

On the afternoon of the 24th there was a butting collision between a passenger and a freight train on the Pittsburgh, Cincinnati and St. Louis road at Foster's Crossing, O. Both engines were broken, an engineer and five passengers hurt.

Very early on the morning of the 26th there was a butting collision between two freight trains on the Cleveland, Columbus, Cincinnati & Indianapolis road near Crestline, O. Both engines and eight cars were wrecked.

On the morning of the 26th there was a butting collision between two freight trains on the Chicago & Alton road near Mason City, Ill., by which both engines were badly broken.

On the night of the 26th there was a butting collision between two freight trains on a trestle near McGregor, Ia., on the Chicago, Milwaukee & St. Paul road. The engines were wrecked, several cars thrown from the trestle, a trainman and two tramps killed and three trainmen hurt.

On the morning of the 28th there was a butting collision between a passenger and a freight train on the Pittsburgh, Cincinnati & St. Louis road near Mansfield, Pa., by which both engines were wrecked and a brakeman hurt. Both trains were running to reach a siding, where they were to meet.

On the night of the 30th there was a butting collision between an excursion and a freight train on the Indiana, Bloomington & Western, Ohio Division, in Tiffin, O. Both engines and several cars were badly broken, one man badly and six slightly hurt.

CROSSING COLLISION.

On the evening of the 3d a St. Louis, Alton & Terre Haute freight train ran into an Illinois Central freight at Duquoin, Ill., damaging three cars.

PASSING COLLISION.

On the evening of the 6th, as two passenger trains on the New York Central & Hudson River road were passing each other at high speed near Tarrytown, N. Y., the rear cars of the two trains lurched over at the same moment and struck each other. Both cars had their sides knocked in, and four men were slightly hurt. It is said that the tracks at that point are very close together.

DERAILMENT, BROKEN RAIL.

On the morning of the 6th six cars of a stock train on the Ohio & Mississippi road were thrown from the track near Vincennes, Ind., by a broken rail.

DERAILMENTS, BROKEN BRIDGE.

On the morning of the 7th a trestle bridge on the Canada Atlantic road at Ottawa, Ont., gave way under a construction train and three cars went down. Five laborers were hurt.

On the afternoon of the 21st a freight train on the Denver & Rio Grande road broke through a bridge near Pueblo, Col., and the engine and several cars went down and were wrecked, killing the fireman and fatally injuring the engineer.

DERAILMENTS, SPREADING OF RAILS.

On the night of the 12th several cars of a freight train on the St. Louis, Iron Mountain & Southern road were thrown from the track near Hope, Ark., by the spreading of the rails.

On the afternoon of the 17th several cars of a freight train on the Rochester & Pittsburgh road were thrown from the track near Rochester, N. Y., by the spreading of the rails.

On the morning of the 19th two cars of a freight train on the Peoria, Decatur & Evansville road were thrown from the track near Evansville, Ind., by the spreading of the rails.

On the afternoon of the 19th the engine of a construction train on the Cincinnati, Wabash & Michigan road was thrown from the track on a trestle near Niles, Mich., by the spreading of the rails, and fell 12 ft. to the ground. The fireman was fatally hurt.

On the morning of the 20th seven cars of a freight train on the Louisville & Nashville road were thrown from the track near Sebree, Ky., by the spreading of the rails.

DERAILMENTS, BROKEN AXLE.

On the night of the 7th six cars of a freight train on the Intercolonial road were thrown from the track near Anagance, N. B., by a broken axle.

On the morning of the 17th two cars of a passenger train on the Prince Edward Island road were thrown from the track near Winslow, P. E. I., by a broken axle, and rolled down a bank. The cars were much damaged and six passengers hurt.

On the morning of the 20th six cars of a freight train on the New York Central and Hudson River road were thrown from the track near Macedon, N. Y., by a broken axle.

On the morning of the 21st a car of a freight train on the New York & New England road was thrown from the track near Springfield, Mass., by a broken axle.

Early on the morning of the 25th eight cars of a coal train on the New York Central & Hudson River road were thrown from the track near Weedsport, N. Y., by a broken axle.

Early on the morning of the 26th several cars of a freight train on the Philadelphia, Wilmington & Baltimore road were thrown from the track at Brandywine, Del., by a broken axle, blocking the road five hours.

On the morning of the 27th a car of a passenger train on the Central Railroad, of New Jersey, was thrown from the track in Elizabeth, N. J., by a broken axle.

DERAILMENTS, BROKEN WHEEL.

On the afternoon of the 2d several cars of a freight train on the New York Central and Hudson River road ran off the track near Holley, N. Y., blocking the road several hours. The accident is said to have been caused by a broken wheel.

On the morning of the 22d several cars of a construction train on the New York, West Shore & Buffalo road were thrown from the track at Wampsville, N. Y., by a broken wheel.

On the afternoon of the 22d a car in the pay train on the New York Central and Hudson River road was thrown from the track near Rome, N. Y., by a broken wheel.

DERAILMENTS, BROKEN TRUCK.

On the evening of the 9th several cars of a freight train on the Oregon Railway & Navigation line were thrown from the track near the Dalles, Or., by a broken truck. A flat car with a steam fire-engine on board ran into the Columbia river, in water 60 ft. deep.

On the morning of the 22d six cars of a freight train on the Central Railroad of Georgia were thrown from the track near Geneva, Ga., by the breaking of a truck.

DERAILMENT, WASH-OUT.

On the evening of the 14th a passenger train on the Chicago, Burlington & Quincy road ran into a wash-out near Red Cloud, Neb., and the whole train went into the ditch.

DERAILMENTS, ACCIDENTAL OBSTRUCTION.

On the night of the 1st a passenger train on the Grand Rapids & Indiana road was thrown from the track near Petoskey, Mich., by a tree which had been blown down across the track.

Early on the morning of the 10th the engine of a freight train on the New York, Lake Erie & Western road was thrown from the track on a siding at Castile, N. Y., by a beam which fell across the rails.

On the night of the 10th a passenger train on the Denver & Rio Grande road struck a large stone which rolled on the track near Pueblo, Col., and the engine and one car were thrown from the track and down a bank.

On the night of the 21st several cars of a freight train on the New York Central & Hudson River road were thrown from the track in Rochester, N. Y., by a brake-beam falling on the rails.

DERAILMENTS, CATTLE.

On the evening of the 5th a passenger train on the Philadelphia & Reading road ran over a mule at Mt. Carmel Pa., and several cars were thrown from the track and wrecked. Two passengers were slightly hurt.

On the morning of the 10th a repair train on the Chicago & Grand Trunk road ran over a cow near Elba, Mich., and the engine and four cars were thrown from the track. One man was killed and three hurt.

On the night of the 13th a construction train on the Chicago, Burlington & Quincy road ran over some cows near Brush, Col., and the engine was thrown from the track.

On the afternoon of the 15th a passenger train on the Louisville & Nashville road ran over a cow near Edgefield Junction, Tenn., and the engine and baggage cars were thrown from the track.

On the evening of the 18th a passenger train on the Memphis & Charleston road ran over a cow near Germantown, Tenn., and the engine was thrown from the track. The engineer and fireman were slightly hurt.

On the evening of the 19th a freight train on the Galveston, Harrisburg & San Antonia ran over a cow near Rosenburg Junction, Tex., and the engine and four cars were thrown from the track.

On the morning of the 27th a gravel train on the New York Central & Hudson River road ran over a horse near Rochester, N. Y., and two cars were thrown from the track.

On the night of the 28th the engine and several cars of a freight train on the Chicago & Northwestern road were thrown from the track near Stevenson, Mich., by a yoke of oxen which had strayed on the track.

DERAILMENTS, MISPLACED SWITCH.

On the morning of the 11th the engine and two cars of a freight train on the Central Vermont road were thrown from the track at St. Albans, Vt., by a misplaced switch.

On the afternoon of the 22d a passenger train on the Boston & Providence road was thrown from the track in Canton, Mass., by a misplaced switch. The cars were nearly upset and somewhat damaged.

On the morning of the 23 the engine and two cars of a passenger train on the New York Central & Hudson River road were thrown from the track in Buffalo, N. Y., by a misplaced switch.

On the night of the 27th a passenger train on the Columbus, Hocking Valley & Toledo road was thrown from the track at Courtright, O., by a misplaced switch. A trainman was hurt.

MALICIOUS DERAILMENT.

On the afternoon of the 24th, a passenger train on the Georgia Railroad was thrown from the track near Lexington, Ga., by a large stone which had been placed on the track. A boy has since been arrested and committed for trial on charge of placing the stone.

UNEXPLAINED DERAILMENTS.

On the afternoon of the 1st, several cars of a freight train on the Northern Central road were thrown from the track near Williamsport, Pa., blocking the road three hours.

On the afternoon of the 6th five cars of a ballast train on the New York, Lake Erie & Western road were thrown from the track at Limestone, N. Y., blocking the road two hours.

Early on the morning of the 6th eight cars of a freight train on the Cincinnati Southern road ran off the track near Somerset, Ky., blocking the road nine hours.

On the morning of the 11th a car loaded with coal was switched at Summitville, N. Y., on the Ellenville Branch of the New York, Ontario & Western Railroad, and, getting under motion, ran all the way to Ellenville, a distance of eight miles, finally running off the end of the road and bringing up a complete wreck in a yard. Although the branch road is a down grade, there are a number of up grades on it, but such was the momentum of the runaway car that it succeeded in climbing all the summits and made the run in quicker time than it would have done behind a locomotive.

On the evening of the 12th several cars of a freight train on the New York Central & Hudson River road ran off the track near Waterloo, N. Y., blocking the road two hours.

On the night of the 13th several cars of a freight train on the Chicago, Milwaukee & St. Paul road, ran off the track near DeForest, Wis. A brakeman was hurt.

On the morning of the 18th two cars of a special passenger train on the Chicago, Burlington & Quincy road ran off the track near White Breast, Ia., on a bridge, but did not leave the ties. A number of officers of the road were on board.

On the 22d a construction train on the Canadian Pacific road ran off the track near Sheldon, Man. The caboose was wrecked, killing one laborer and injuring five others.

On the morning of the 24th a car of a passenger train on the Utica, Ithaca & Elmira road ran off the track in Canastota, N. Y., blocking the road two hours.

On the morning of the 25th several cars of a freight train on the New York Central & Hudson River road ran off the track in Rome, N. Y., blocking two tracks five hours.

On the evening of the 26th eight cars of a freight train on the New York, Lake Erie & Western road were thrown from the track at Ridgewood, N. J., blocking the road an hour.

On the night of the 26th several cars of a freight train on the New York Central & Hudson River road ran off the track in Schenectady, N. Y., blocking the road two hours.

On the afternoon of the 27th the engine of a construction train ran off the track in Rochester, N. Y., on the New York Central & Hudson River road.

On the morning of the 28th a freight train on the Pittsburgh, Cincinnati & St. Louis road ran off the track near Mansfield, Pa., and several cars were wrecked.

On the afternoon of the 30th three cars of a freight train ran off the track in Nashville, Tenn., on the Nashville, Chattanooga & St. Louis road.

OTHER ACCIDENTS.

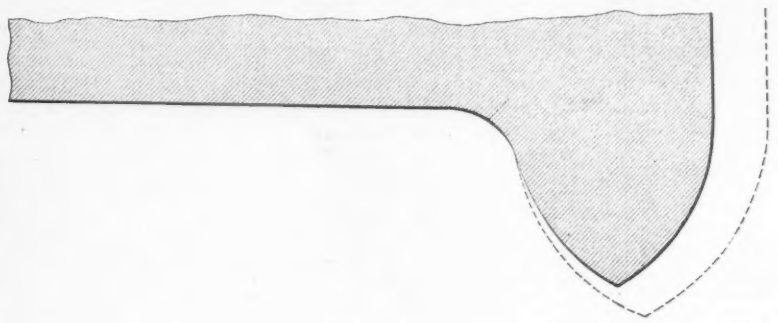
On the evening of the 12th the engine of a passenger train broke a driving axle when on a high trestle near Swannanoa Tunnel, N. C. The axle broke off close to the hub of the wheel, but the train did not leave the track and crossed the trestle safely.

On the morning of the 17th the engine of a freight train on the Louisville & Nashville road broke a spring-hanger near Guthrie, Ky., letting the engine down so that the pilot struck the rails and was broken up. The engine did not leave the track.

On the afternoon of the 17th the engine of a passenger train on the Connecticut River road broke a parallel rod when near Greenfield, Mass., doing some damage.

On the morning of the 18th the engine of a passenger

Fig.1



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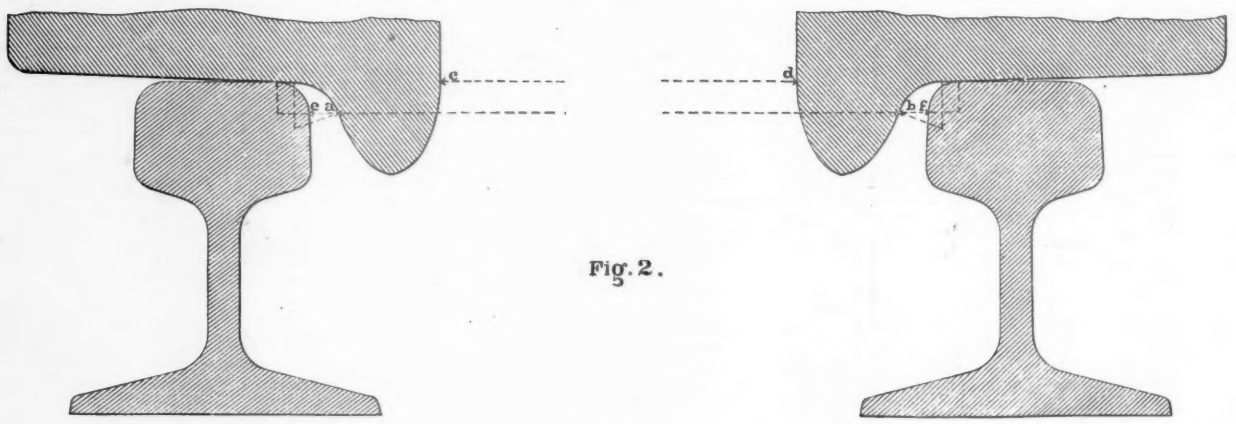


Fig. 2.

Half Size.

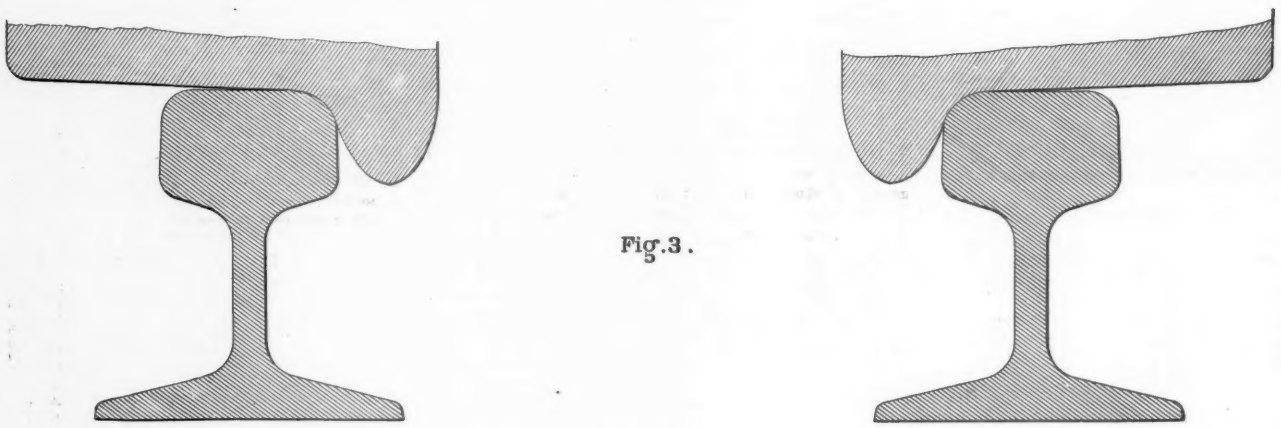
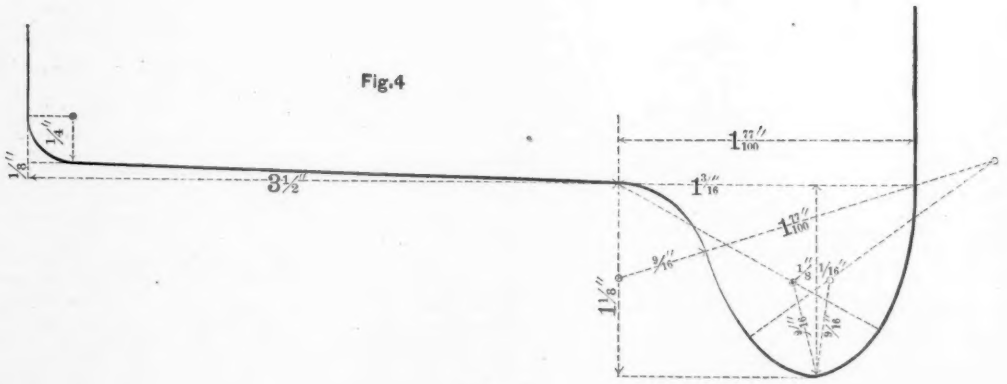


Fig. 3.

Half Size.

Fig.4



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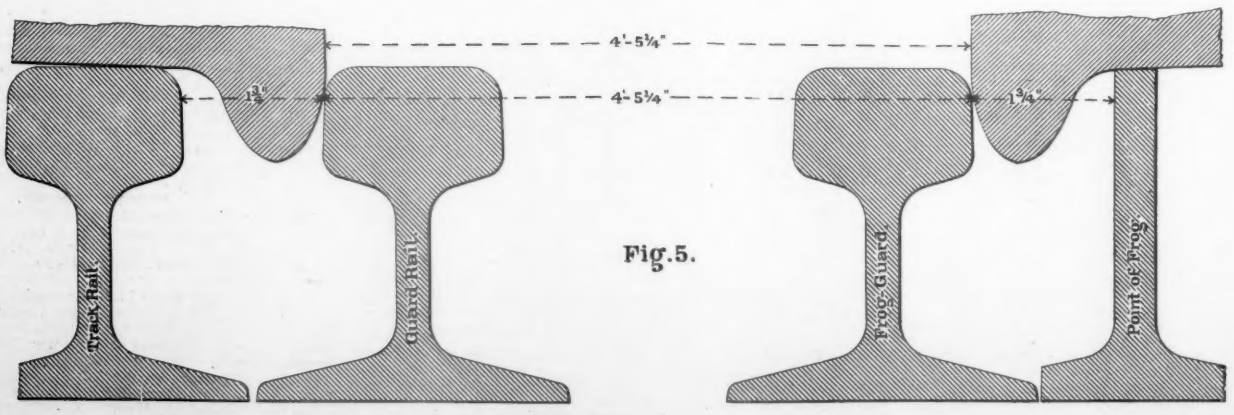

Fig. 5.

Half Size.

train on the New York, Lake Erie & Western road broke a parallel rod near Pontiac, N. J., tearing up one side of the cab.

SUMMARY.

This is a total of 92 accidents, in which 18 persons were killed and 56 injured. Ten of the killed and 30 of the injured were railroad employés, while eight of the killed and 26 of the injured were passengers or others riding on the trains.

For the seven months of 1882 there have been reported 663 accidents, 188 killed and 764 injured, a monthly average of 95 accidents, 27 killed and 109 injured.

Contributions.

Wheel Gauges and Flanges.

TO THE EDITOR OF THE RAILROAD GAZETTE:

To establish a standard wheel gauge and a standard section for the flanges of car wheels and locomotive tires is a work of so much importance that it is to be hoped the Master Car-Builders' Association may coutinue the discussion of the subject, until the members are able to agree upon and adopt such standards.*

The present wide diversity of practice among railroad mechanics and car-manufacturers is productive of loss and damage in many ways, and the number of roads whose track gauge differs from the standard of 4 ft. 8½ in. is comparatively so small that it would be far better to have no interchange of cars between roads of different gauge than that roads of standard gauge should build and use cars with wheels set to the so-called "compromise" gauge, under the false idea that such cars are all right for either a track gauge of 4 ft. 8½ in. or 4 ft. 10 in.

As this subject has been under discussion for some months in the engineering and mechanical department of the Atchison, Topeka & Santa Fe Railroad, I venture to present some facts and considerations in the hope that they may lead to further discussion either through the columns of the *Gazette* or in private correspondence.

Examining the rolling stock belonging to our own road, the greater part of which has been purchased from different car manufacturers within the past four years, I find a great diversity both in the wheel gauge and in the size of wheel flanges, and I find a still greater variation in the wheel gauge of foreign cars.

Fig. 1 shows, in full size, the extreme variation in flange section which I have found, the shaded section being that of the smallest flange and the dotted line being the outline of the largest flange section.

The following table shows the variation in the gauge of wheels, the measurements having all been taken from cars upon our tracks at Topeka.

Fig. 2 represents a section (half size) of the flanges of a pair of wheels as resting on track rails. The point *a* (or *b*), which is the lower end of the curve of short radius which joins the flange with the "tread" of the wheel, I will call the *wheel-gauge point*; and the point *c* (or *d*), the position of which is clearly indicated by the figure, I will call the *flange gauge point*. The distance *ab* is then the *wheel gauge*, *cd* the *flange gauge*, and *ef* the track gauge.

Comments upon these figures are unnecessary, as it can readily be seen that we cannot construct track and set frogs, guard rails and switches with such a gauge of track as will fit all these wheels.

The following points occur to me as having more or less weight in the consideration of the question what shall be the standard wheel gauge to correspond with a track gauge of 4 ft. 8½ in.:

1. The resistance of cars to traction as affected by the wheel gauge.
2. The liability of cars and engines to leave the track as affected by the wheel gauge and flange section.
3. The cost of maintenance of cars as affected by the wheel gauge.
4. The cost of maintenance of track as affected by the wheel gauge.
5. The proper guage of track and of guard rails at frogs and switches as affected by the wheel guage and flange gauge.

Upon the first point no authoritative decision can be made without careful experiments conducted under practical conditions.

Fig. 3 (also half size) shows the relative position of rails and wheel flanges when the former are set to the standard gauge of 4 ft. 8½ in. and the latter to a wheel gauge of 4 ft. 7¾ in.

The difference of ¾ in. between the track gauge and the wheel gauge allows the car truck to accommodate itself to the ordinary imperfections of the track and reduces the resistance to traction to a minimum so far as it is affected by the wheel gauge.

Fig. 3 shows the relative position of wheels and rails when the wheel gauge is the same as the gauge of the track, and I am sure that a moment's consideration will be sufficient to convince any "practical railroad man" that a car fitted with wheels at this gauge will require more motive power than a car with wheels set as shown in Fig. 2.

It may be that a less allowance for lateral motion would accomplish fully as much as that which I have indicated. There are, so far as I know, no results of experiments nor other facts from which to argue that an allowance of ¾ of an inch is better than ½ inch; on the other hand I do not see any valid objection that can be urged against the allowance of ¾ of an inch, and I give it as my opinion that a wheel gauge of 4 ft. 7¾ in. will give the best results.

Questions two, three and four, noted above, cannot be authoritatively decided, but must remain matters of individual opinion or judgment. I think it probable that within moderately narrow limits the safety of cars—or their liability to leave the track—is not affected by the wheel gauge. I should say that in car trucks having wheels gauged between 4 ft. 7½ in. and 4 ft. 8¼ in. no difference could be observed in their tendency to leave the rails; but in going beyond these limits, on the one hand the lateral oscillations might become so great as to be an element of danger, while on the other hand, in exceeding the greater limit, there would be a tendency of the flanges to crowd the rails, and at frogs and switches or upon rough track the wheels would be more apt to "climb the rails."

TABLE SHOWING VARIATION OF WHEEL GAUGE.

Car No.	Initials.	Manufacturer.	Wheel Gauge.	Flange Gauge.
			Ft. in.	Ft. in.
Locomotive 155	A. T. & S. F.	Pittsburgh Loco. Wks	4 7¾	4 4⅜
" 278	"	Taunton Loco. Wks	4 7⅞	4 5¼
Coach 56	"	Bowers, Dure & Co	4 8¼	4 5 7/16
" 78	"	Ohio Falls Car Co	4 8 1/16	4 5⅝
Sleeping Car Wyoming	Pullman	P. P. C. Co	4 8½	4 5¾
Freight Car 5,643	A. T. & S. F.	Ohio Falls Car Co	4 7⅞	4 5 3/16
" " 6,102	"	St. Charles Mfg. Co	4 8½	4 5⅜
" " 7,983	"	La Fayette Car Wks	4 8 5/16	4 5⅝
" " 9,442	"	Wells & French Car Co	4 8⅝	4 5½
" " 11,528	"	Missouri C. & F. Co	4 8¼	4 5⅝
" " 11,794	"	Litchfield C. & M. Co	4 7 7/16	4 4 13/16
Car Wheels	"	Set at Topeka	4 7 13/16	4 5 7/16
Coach Wheels	"	" "	4 7⅞	4 5 5/16
Freight Car 1,013	A. & P.	W. C. Allison & Co	4 8⅝	4 5¾
" " 3,108	Mex. Central		4 8 1/16	4 5¼
" " 600	St. L. R. C. Co	Mo. Car & F. Co	4 7 11/16	4 4 15/16
" " 17,469	L. S. & M. S.	Harrisburg Mfg. Co	4 8¼	4 5½
" " 2,040	P. D. & E.	La Fayette Car Wks	4 8	4 5⅝
" " 3,389	C., St. L. & N. O.		4 7⅞	4 5¾
" " 801	U. P.	Terre Haute C. & M. Co	4 7⅞	4 5 3/16
" " 18,860	W., St. L. & P.	Peninsular Car Works	4 8¼	4 5½
" " 1,827	C., B. & U. P.	Barney & Smith	4 8 5/16	4 5⅜
" " 2,091	Cairo Short Line	Litchfield C. & M. Co	4 7 13/16	4 5
" " 74	K. C., Ft. S. & G.	Mo. R. F. S. & G. R. R. Co.	4 7⅞	4 5⅛
" " 1,458	Wis. Central	St. Charles Mfg. Co	4 8 7/16	4 5 1/16
" " 1,088	C. & V.	Terre Haute C. & M. Co	4 8 3/16	4 5¼
" " 3,000	C. P.		4 7¾	4 5¼
" " 2,259	H. & St. Jo.	Hannibal Car Wks	4 8⅝	4 5¾
	S. & I. S. E. Cont'l Line		4 8 13/16	4 5⅜
" " 4,593	M., K. & T.	Ohio Falls Car Co	4 8¼	4 5 5/16
" " 1,696	C., M. & St. P.	Haskell & Barker Car Co	4 8¼	4 5½
" " 9,532	Mo. Pac.	Terre Haute C. & M. Co	4 8⅛	4 5⅝

From this table I note:

	Ft.	In.
Greatest wheel gauge	4	8 13/16
Least wheel gauge	4	7 7/16
Least flange gauge	4	4 13/16
Greatest flange gauge	4	5 5/16

showing a variation of 1⅜ inches in the wheel gauge and 1 1/16 inches in the flange gauge.

* See report of committe in *Gazette* of June 23.

Within the same wheel-gauge limits there would probably be no perceptable difference in the cost of maintenance of cars or track, and in exceeding these limits there would probably be not only an increased specific cost of maintenance, but the greater liability to accidents in exceeding the limit, carries with it, as a matter of course, equal possibilities as to the cost of maintenanee.

The proper gauge of track at frogs and switches cannot be decided until the standards for wheel gauge and flange section are fixed, and *vice versa*, these standards ought not to be fixed without due regard to the gauge of track and guard rails.

In the most common construction of track frogs, the distance between the point of the frog and the frog guard rail is 1¾ in., and it is the custom of track men to set the guard rails opposite the frog at a distance of 1¾ in. from the track rail,* so that if the track at the point of the frog is gauged to 4 ft. 8½ in. the guard rail gauge would be 4 ft. 5 in., or if, as I think it best to do, we make the gauge of track at frog and switches 4 ft. 8¾ in., then the guard-rail gauge would be 4 ft. 5¼ in., and, as the flange gauge of car wheels should coincide with the guard-rail gauge, it follows that whatever standard wheel gauge may be adopted the flange section should be made to so correspond that the flange gauge will be 4 ft. 5¼ in.

In Fig. 4 is shown the wheel section (full size) which I would recommend as best meeting the conditions of my own practice in the setting of frogs and guard rails in track.

The flange in this section has substantially the same form as the New York Central standard section, but has somewhat smaller dimensions. The horizontal distance between the wheel-gauge point and the flange-gauge point is 1¼ in., so that when the wheel gauge is 4 ft. 7¾ in. the flange gauge will be 4 ft. 5¼ in.

In Fig. 5 I have shown a section of a pair of wheels (half size) resting upon rails at the point of a frog and the relative position of track and guard rails and of wheel flanges under the conditions which I have recommended above.

It may be that for coaches it will be desirable to have a wheel gauge somewhat wider than for freight cars, in order to lessen the lateral oscillations. If so, as I have indicated above, a wheel gauge for coaches may be used as wide as 4 ft. 8¼ in. without affecting safety or expense, except as the latter will br influenced by the greater motive power made necessary by the use of the wider gauge.

GEO. B. LAKE,
Prin. Assistant and Consulting Engineer,
A. T. & S. F. R. R.

TO THE EDITOR OF THE RAILROAD GAZETTE:

We have examined the communication which Mr. Lake has prepared for publication in the *Gazette*, have considered his recommendation in regard to standard wheel gauge and a standard of form and dimensions for the flange of car wheels, and endorse the same, hoping that the Association of Master Car-Builders will adopt as standards, either the form and dimensions recommended in this communication, or such others as may best meet the views of the majority of mechanics and engineers representing roads having a track gauge of 4 ft. 8½ in.

A. A. ROBINSON,
Chief Engineer, A. T. & S. F. R. R.
GEO. HACKNEY,
Superintendent Locomotive and Car Departments, A. T. & S. F. R. R., and member Master Car-Builders Association.

Pennsylvania Shop Notes.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Narrowing Passenger Cars.—A paragraph in the Altoona *Tribune* has been a great source of trouble to me:

"The Pennsylvania Company is now building all its passenger coaches one foot narrower than the ordinary pattern, reducing the width by making the aisle narrower. The object is to make the car lighter and to lessen the resistance. The pattern adopted reduces the weight 5 per cent. and the resistance fully 10 per cent., yet the coach is just as convenient and rides easier than the ordinary wide coach."

This was certainly too definite a statement to be made out of whole cloth, but I could get no light upon it until I reached Pittsburgh. The simple facts proved to be that the Pennsylvania standards are being gradually adopted on all Pennsylvania roads, and that the new cars of the Pittsburgh, Fort Wayne & Chicago are being built after standard changings furnished by Altoona. The old standard Fort Wayne cars were 8 ft. 11 in. inside; the Pennsylvania cars are 8 ft. 5 in. There is a tendency to widen rather than to narrow cars. Some new parlor cars built during last year at Altoona are wider than standard width.

Asbestos Forges.—The blacksmith shop of the Pittsburgh, Fort Wayne & Chicago at Pittsburgh has been much troubled by the unsettling of the brick forges by the jar of the steam hammers. Necessity has, however, proved the mother of invention. Forges of asbestos paper have proved a decidedly successful method of overcoming all difficulties.

Big Trains and Strain on Draw Gear.—It is widely known that the average cost of handling freight per ton-mile has been less on the Philadelphia & Erie Division of the Pennsylvania road than on any other line in this country. This has been done with no apparent increase of damage to track, as least so far as I have been able to discover by inquiry; in fact, the whole force of the increase of train seems to have fallen upon the draw gear. The increased breakage of draw irons has been something, but has been met by improved forms. The splitting of draw timbers and the fracture of draw irons does not come in the pull, of course, but from concussion; and the splitting of timbers, at least, has been less since the use of air-brakes on the engines. The fracture of draw bars is nearly always at a point where the iron has been welded. This is not because properly welded iron cannot sustain such a shock, but because of the difficulty in getting proper care in welding.

Making Steam with Shavings.—Renovo shops, on the

* See *Gazette* of May 12.

Philadelphia & Erie Division, have a new car shop, devoted entirely to building and repairing freight cars The furnace of the engine which produces all the power for the shop has been run entirely on shavings. Not a pound of coal has been used since the opening of the shop, nearly a year ago.

Under-floor Shafting.—The shafting of the shop is entirely under the floor, or rather, perhaps I should say, in the cellarage. A firm foundation of brick is here made for it; it is easily gotten at, and makes less noise than overhead shafting. But the principal advantage is the improvement of light in the shop; there are no longer those broad shadows which, especially at night, are troublesome to those who must work under them, and dangerous to those who work about circular saws and other cutting instruments.

Lighting Shops.—It is doubtful whether the lighting, or rather the light of shops, get sufficient attention. Smoke and soot soon give a black ceiling, if it be not already covered with black belts, and this destroys a large quantity of light, especially with the aid of large black masses of iron tools. Skylights are objectionable, because of the intolerable heat of the sun shining through them. The only true method of sufficient light is large window area, and white, or rather light colored, surfaces. It would, however, appear to be possible to get light from the roof without the disadvantages of the sun's direct rays. X. Y. Z.

Wheel Service.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In an article published in your issue of Feb. 24, 1882, I expressed a belief that steel-tire wheels would increase in average mileage from year to year, and the reasons for that statement had been apparent to me for a long time, and will be clear to your readers when I state them. They are these: When the steel-tire wheels were first made, no pains were spared to make them as perfect as possible from the most reliable and durable metal, irrespective of expense, and the result was a magnificent wheel, that reached an actual mileage of over 500,000 miles. When it was demonstrated that the wheels had proved a perfect success, the manufacturers very foolishly commenced experimenting with different kinds of cheap metal to reduce the expense, without the knowledge of the railroad companies at the time, and the result was a great many of these wheels were bought and put in service on the strength of the reputation gained by the first wheels made, and the result sure to follow was failure. When this almost irreparable damage was discovered, they returned to their first methods.

Now, in figuring the actual average mileage I have invariably included these "defective" wheels, which I believe to be right, and of course it figures largely to the disadvantage of steel-tire wheels; but now that these "defective" wheels are being weeded out, we begin to get the results obtained from the good honest wheels, and these are mainly the reasons for my belief in the success, in the future, of the steel-tire wheels. But will the manufacturers profit by their dearly bought experience and continue to make an honest wheel in the future, is the question.

There have been, justly, very grave doubts in the minds of many whose judgment is valued, and I have shared them, as to the economy of steel-tire over cast-iron wheels, leaving out of the account, of course, many elements of advantage which every one admits are hardly possible to estimate in favor of the steel-tire wheel, by reason of its perfect roundness. A little observation and experience, however, as to the different results obtained by the use of the two kinds of wheels will demonstrate more clearly the advantages gained by the use of the steel-tire wheel than can be shown in any other way.

A moving train under which are placed cast-iron wheels produces a destructive force upon the parts subject to wear and tear, including track and road-bed, beyond our power to estimate, in consequence of the irregularity in the surface of the tread of the wheel, resulting in an unequal strain upon the parts and an uneasy motion of the car, causing many hot boxes as the result of increased friction. While a train under which are placed steel-tire wheels, perfectly round, moves along in comparison, quietly and smoothly, with no hot boxes to annoy or delay. The more perfect the adjustment of parts, the greater will be the success obtained, and it will not be very long before railroad mechanics and managers will wonder why they have not properly considered this question before.

It has been asked frequently by inexperienced men in railroad matters, why a particular train on a certain road make so much noise in passing, while others going at the same speed apparently move with comparative quietness.

The facts are these: the train referred to has cast-iron wheels under it, while the others are provided with steel-tire wheels. In connection with this statement I would say that the 42 in. steel-tire wheels will carry a train, noticeably, more smoothly than the 33 in. Now, these are the facts, which I believe to be incontrovertible; if they are not, will some one show to the contrary, for I am extremely anxious to get at the bottom facts of this important problem, and the only way to get at facts is by the results of various experiences.

In view of the foregoing and in consideration of the following statement of comparative cost, I ask, is it not about time for railroads to make a long stride towards advancement in this direction? It seems to me that railroad interest and railroad improvement and public comfort demand it. After an experience of 17 years in the varying failures and successes of the steel-tire wheel, I am at last able to write with confidence, believing that the results will amply justify the reliance we now place in the wheel. The disadvantages of a cast-iron wheel when fully considered, are numerous. There is one feature only, besides those already stated, that I deem necessary to mention here. I believe it is admitted by all that a cast-iron wheel is not likely to be round. Now, supposing in pressing them on the axle the small diameter of one wheel comes opposite the large diameter of the other. What is the result? Not a very easy motion, I apprehend; and this is not all; that the axle in consequence must sustain a severe strain is obvious. But up to within a very short time it does not seem singular that railroad managers have been in doubt as to what course to take in this matter, owing to the many failures, but every careful observer who has sought to keep pace with the march of events must have concluded that this question presents elements peculiarly practical and worthy careful attention. It requires time and labor to reach results, and the figures shown here are the result of a method adopted some twelve years ago by which careful and accurate daily records are kept of each wheel in service, and I know of no other process by which facts can be reached. These are matters of ultimate importance to our railroad managers, and I believe they will be useful and valuable to them and tend to stimulate a healthy action in this direction.

It has taken a long experience with careful, accurate records kept, to enable us, honestly, to come to the conclusions indicated here. They might have been reached just as well six years ago had the manufacturers continued to make the same honest wheel as at first.

The method by which these figures are reached is the same as that employed in the statement made in your issue of Feb. 24, 1882.

For the six months ending July 1, 1882, we have taken out 51 steel-tire wheels, worn out or condemned from other causes. Their actual average mileage has been 220,021 miles, and the actual average time in service has been 2,515 days, or 6 years, 10 months, 25 days.

For the past year the actual average mileage of the cast-iron wheels has been 34,290 miles. To make 220,021 miles, the life of a steel-tire wheel, it will require 6.416+cast-iron wheels, and the time in service to make 34,290 miles, would be 392 days.

	Wheels—	
	One pair steel.	6.416+pairs cast-iron.
Value	$100.00	$179.65
Cost of fitting, etc	4.50	12.83
Interest	51.00	35.03
Total	$155.50	$227.51
Value of old wheels	18.75	85.91
	$136.75	$141.60

Honesty and facts are sure to win in the long run.

NEW ENGLAND.

A Suggestion as to Dead-Blocks.

TO THE EDITOR OF THE RAILROAD GAZETTE:

After reading the article in the RAILROAD GAZETTE of July 28, on the relative merits, or demerits, of double and single blocks, it has occurred to the writer to inquire why a simple modification of the iron buffer in common use on the rear end of tenders, in connection with the Miller coupler, will not fill the requirements? They can be applied just over the draw-heads, so that when the draw-springs are fully compressed the buffers will be just in contact.

As this form of buffer is hollow and open, the pin can be easily handled through the top, while the link can be worked in the ordinary way. Two cars, one with and the other without the above device, would couple as easily as at present, even if of unequal heights, and also with either system of dead-blocks now in use. It is cheap and easily applied, and the buffer being in the centre and above the draw-head, there can be no danger of crushing the body or limbs of brakemen, while the draw-gear is protected from shocks. The upward curve necessary on tenders could be dispensed with, so that the strain would be directly in the line of the floor timbers of the car.

The writer can see no possible room for any patent claims against it, and is therefore at a loss to understand why it has not been put into use, if it can be made heavy enough for the severe shocks of freight service.

E. E. DE LANCEY.

Papers on Painting.—No. 16.

BY CHARLES L. CONDIT.

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PAINTING A PASSENGER CAR.

In painting a passenger car, fix the attention on the important things, and distinguish them from each other.

These are:

1st. The protecting coats.

2d. The ornamental coats.

3d. The relation of every coat to those immediately above and below it.

The protecting coats of a passenger car are the priming and the varnish. Other coats than these are ornamental and not necessary for the protection of the wood. Protecting coats need oil to protect the wood, ornamental coats need oil only to bind their particles together. In hurried work lay out the plan of the painting to get all possible time for the protecting coats. Prime the car while still in the carpenter's hands, and at the earliest moment which the work will allow.

Knots.—Cover these with a varnish of shellac (see wood), or (better) gild them over with gold leaf.

Priming.—Use pure, thin oil. If the wood is not perfectly dry, put on the oil hot—150° or less. This is necessary because if there is water in the wood cells, only a thin oil will get an entrance, and unless the priming enters the cells, there is danger of the paint peeling off.

Whatever system or method is used, begin with a priming of thin oil, giving the wood all it will drink up. *The less oil left on the surface, the less danger of cracking;* no oil, however, should be wiped off. Prime both sides of the wood, the inner side with two coats. On the surface to be painted, never, under any circumstances, put on more than one coat of priming, *i. e.*, more than one oil coat. With one coat of priming deep in the cells of the wood, the work of *protection* of the surface is completed until the varnishing.

It is well to use a thin drier, made with red lead or borate of manganese, with the priming. Gold size may be used, but is expensive, of course, and much of it makes oil brittle. The priming must be dry before any other coat is put over it; a slight expense here is often a great saving.

Oil will dry in clear weather and in a warm shop in 48 hours; with a little drier added, in half this time. It should be dry, without the least "tach."

Putty.—Use a good putty which will not shrink—"panel putty" the best. Cracks, crevices and holes should be filled solidly full, leaving no air-space below the putty and no putty on the surface, but a solid body of solid putty even with the surface.

There is special danger in the case of screw and nail heads. If air-space be left above these they will rust, and the increasing pile of rust will gradually raise a hill on the surface of the paint by pushing up the putty.

Scraping Filling-Coat.—This should be the next coat in an economically painted car. There is economy of labor, material and time, in using a leveling coat or rough stuff which may be scraped, and the result on light colors is entirely satisfactory, and to be recommended even for dark colors.

A good material for this coat is keg white lead (6 lbs.), whiting (7 lbs.), mixed thick with coach japan and ground in a paint mill. For use, thin this mixture with turpentine to the consistency of plaster of paris as used by plasterers—*i. e.*, thin enough to work easily, and so thick as not to run. It should be put on with a leveler or scraper. A good tool may be made by fixing an old saw-blade by its teeth into a wooden handle.

This is an ornamental coat. Its purpose is not to protect, but to level the surface of the wood. Therefore, none of it should be left on the plateaus, as the children would say in the geography class. It is not to be left on the higher portions of the surface, but used merely to fill the hollows to a level with these. Keeping this rule in mind, scrape the surface to an even plane, level with the highest level of the bare wood. Give 24 hours to dry, and put on a second coat, scraping down to the level of the highest portions of the bare wood, and filling up all hollows to this level. Give 24 hours to dry, and sandpaper with No. ½ paper. Dust, and the car is ready for color.

Color Coats.—Give three coats of color mixed with turpentine and drier, enough oil (only) being used to prevent the color from rubbing off. Oil in color coats commonly means a cracked job—not immediately, of course, although it may come sooner than one would expect. Each coat of color should have 24 hours to dry.

Color and Varnish.—The advantages of a coat of mixed color and varnish are several: (1) It gives a good and safe surface on which to stripe. Striping cannot safely be done on flat color, because the slightest touch of the hand remains as a permanent mark which comes out more clearly after the car is varnished, and it is almost impossible for the workman to avoid touching the car while striping. For this reason, rubbing varnish is used by those who are convinced that it is an injury to a lasting surface. A coat of mixed color and varnish may be rubbed down with a bunch of hair or moss, and will serve quite as well for a striping surface as rubbing varnish.

(2) A coat of color and varnish makes a half-way coat between the weak oil coat below and the strong varnish coat above. Uniformity in the strength of oil coats is principle "B" in the prevention of cracking of paint and varnish.

In mixing color and varnish, however, one must know what one is doing, and what he is doing with. Tuscan red, the Pullman color, or chrome yellow (mixed with other colors) cannot be used in this way with varnish. On the other hand, chrome yellow (by itself), all white-lead colors, ochres, greens, drabs and vermilion (genuine) will safely and advantageously mix as color with varnish. These facts are given as *facts*, out of a long experience in car-painting. In mixing color and varnish, one uses, of course, the color as mixed for color-coats with an equal amount of good finishing varnish. So thin this mixture with turpentine as to leave on the car only an egg-shell gloss—*i. e.*, a dull, half-lustreless gloss like that on the shell of a hen's egg. Allow 24 hours to dry.

Striping.—Rub off the gloss from this color, and varnish coat with a bunch of dry moss or horse hair. Then stripe and gild. Mix colors for striping by the same rule as colors for color coat. Oil in striping colors will soon show itself on the surface of the finished car by the cracks caused by the pull between it and the varnish.

A man who is a man will resist the temptation to slyly run some oil into his pot, because the flat color does not work easily, and be is a little weary. The man who prefers his ease to doing a good job will pour in the oil.

Stripes and ornamental work should be allowed 24 hours to dry.

Finishing Varnish.—The car is now ready for its first coat of finishing varnish, which should be an elastic (oily) varnish and worked out as a spare coat. It should be allowed at least 48 hours to dry. Then should follow a second and fuller coat of the same varnish, and the car should be kept out of the sun but well exposed to all breezes for a number of days.

Using light colors, only an expert would detect the difference between a car painted by this method and one with the

much more expensive and less safe finish of rubbed rough stuff and rubbed varnish.

A first-class job can be turned out in 12 or 15 days; hardly in less time if a durable finish is desired. Additional time between coats will give additional safety.

In fact, 12 *hours or a day longer to every coat* would, perhaps, pay in the final outcome of work.

METHOD A.

Time required for each coat to dry:

	Hours.
Priming (with drier)	*24
Scraping filling coat (2)	48
Color coats (3)	72
Color and varnish	24
Striping	24
Finishing varnish (2 coats)	96
Total	288

METHOD B.

Prime as directed.

Rough Stuff.—This is merely a leveling coat. Whatever material is used is put on to be rubbed off, in order to have a level surface, and one may choose from a variety of substances. Silicon, ochre, umber, pipe clay and several prepared surfaces are rough stuffs which have special merits, and may be used with advantage. It is well to bear in mind, however, that a porous substance or mixture may soak up oil from outer coats and injure them as well as itself. A good rough stuff is made by adding half a pound of keg white lead to two pounds of silica, the lead serving merely to bind the particles of the latter substance. Too much lead will give too hard a surface.

No oil or varnish should be used with this mixture, but it should be thinned with japan and turpentine, and some very finely ground pumice stone rubbed through it.

With an early start, two, or, if thought necessary, three coats of this surface may be put on in one working day. Next morning, paint over it a *guide coat* of lamp-black and turpentine, bound with a little japan. This guide coat serves to show by its presence on low portions of the surfaces where the low spots of surface are. It, in this way, saves unnecessary rubbing, by guiding the eye, and should be entirely rubbed off. After thorough rubbing, should any black spots be left (remnants of the guide coat) these should be puttied up to the level surface.

Rubbing Rough Stuff.—Simple as it may appear, there is art in rubbing rough stuff and varnish. The sponge filled with water should be held in one hand in such a position as to feed the pumice stone which is rubbed against the surface with the other hand. Artificial stone may be used for the early stages of rubbing, the finishing being done with the finer natural stone.

The filling coat should be thoroughly rubbed away to a level, which should be as low a level as possible—that is to say, as little of the rough stuff should be allowed to remain as possible. It requires the labor of two men for six days, or four men for three days, to properly rub the rough stuff on a car. Also eight pounds of pumice stone, together with a considerable amount of waste material used in the filling coat.

Also, it is an odd thing to do, to undertake with great pains to protect a car from water, and after only the first step in this protection to industriously rub water into its surface during a whole week.

When the surface is rubbed to a perfect plane, sandpaper with No. ½ paper, and dust the corners with knives, brushes, etc., being specially careful not to forget the grooves of the moldings. The surface should now be carefully examined; no more leveling should be necessary after this coat.

Color Coats.—On this surface is placed the color in three coats, mixed as directed in method A. Over the last coat should be placed a varnish composed of one-half rubbing varnish, one-half finishing varnish. In making such a mixture, the painter will, of course, make sure that he knows his materials. Not all varnishes will allow of mixture with others. Experiment must be made in advance. Rubbing varnish as usually made contains too little oil.

Color and Varnish.—Before this coat of mixed varnish, however, it is better on all colors which will allow of it (see method A) to mix color and rubbing varnish. This cannot be done when Tuscan red, the Pullman color, or any *mixture* of chrome yellow is used. An advantage of mixing color and rubbing varnish, in addition to those already given, especially where rubbing varnish is used, is lessened danger of a spoiled job in case the varnish is cut through in the rubbing. Allow 24 hours to dry before rubbing.

Rubbing Varnish with Pumice Stone.—Great care must be taken in rubbing varnish not to cut through the varnish to and through the color. This is especially easy to do about moldings and on sharp corners; in rubbing, one's mind must, so to speak, keep in one's fingers in order that danger may be *felt* and avoided before it is seen. One can spoil a good job of painting in a moment by careless rubbing.

After rubbing this coat of color and rubbing varnish, striping is in order.

Striping and Gilding.—Striping should be done in flat color, as described in method A. It should be allowed 24 hours to dry, and the coat of *finishing and rubbing varnish mixed* should be put over, thoroughly rubbed, and the gilding laid on it, if any gilding is to be done. Gilding should always be laid as near the surface as possible, as a thickness of varnish over it gives it a brassy appearance.

Finishing Varnish.—After the rubbing varnish, two coats of finishing varnish should follow. Before varnishing, th painter will carefully clean the surface of dirt with bits of pumice stone, using a water tool to remove the latter. A bit of pumice in a varnish brush can do a deal of damage.

Time required for Coats to dry by

METHOD B.

	Hours.
Priming (with drier)	*24
Rubbing rough stuff, time near one week	144
Color coats (3)	72
Color and varnish	24
Striping	24
Rubbing and varnish	24
Two coats finishing varnish	96
Total	408
Method A	288
Difference	120

It will be observed we have made no allowance of time for rubbing the varnish. This has been done purposely in order to give the full advantage in the estimate to the longer method.

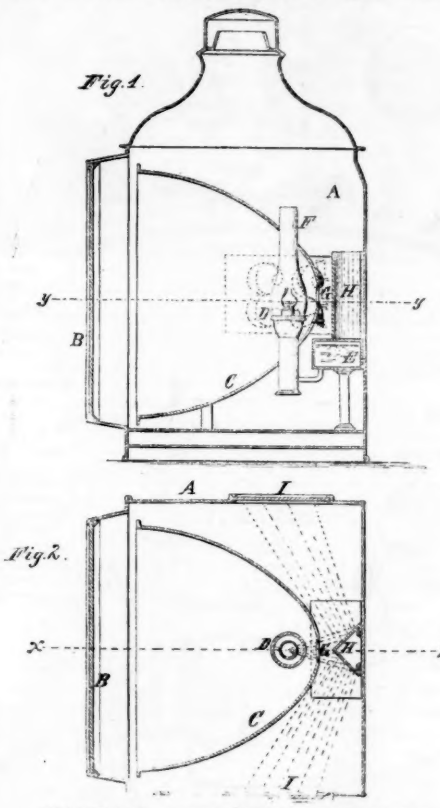
METHOD C.

There is a third method, namely, that of the A B C system. This system economizes time and gives a satisfactory result, but one less durable than where paint is used. In the different mixtures, there is apparently not a little gum used, and possibly on this account, and certainly by the use of an improper priming mixture, the covering much more easily peels and breaks off than does paint. It has, however, peculiar advantages in other directions as a simple and easy method of painting, giving a good rather than a durable—*i. e.*, one which may be used for repainting—surface.

* Allow priming all possible time to dry.

Wilhelm's Improvement in Locomotive Head-Lights.

Mr. Edward Wilhelm, of Buffalo, N. Y., has patented an improvement in the method of illuminating the signal plates or lenses in the sides of the head-light case. Fig. 1 is a vertical



WILHELM'S LOCOMOTIVE HEAD-LIGHT.

longitudinal section, and fig. 2 a horizontal section on the line *yy* of fig. 1.

In describing his invention Mr. Wilhelm says:

"My invention consists in constructing the reflector with an opening at or near its apex behind the lamp, whereby light is emitted backwardly into the head-light case, where it diffuses itself and may be utilized for illuminating the signal plates or lenses applied to the head-light case; also, in providing such case and reflector with an auxiliary reflector which deflects the light emitted backwardly through the openings in the main reflector, and directs such light upon the signals which are desired to be illuminated."

The construction is made clear by the engravings. The inventor's claims are as follows:

"1. In a head-light, a reflector provided with an opening arranged behind the burner, whereby light is emitted backwardly into the head-light case for illuminating single plates or lenses applied to said case, substantially as set forth.

"2. The combination, with a head-light case, provided with signal plates or lenses, of a reflector constructed with an opening arranged behind the burner, and an auxiliary reflector, whereby the light emitted backwardly through such opening is directed toward the signal plates or lenses, substantially as set forth."

Bridge's Car-Coupling Link.

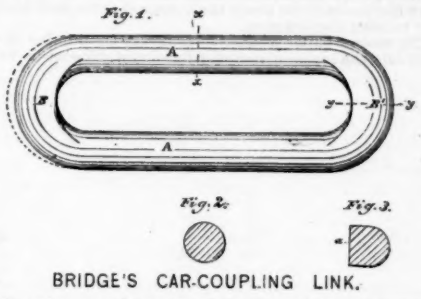
Mr. John Bridge, of Detroit, Mich., patented July 11, 1882, a coupling-link represented by fig. 1, which is a plan, fig. 2 a section on one side at *x x*, and fig. 3 a section of the end on *y y*.

In the specification the inventor says:

"The invention consists in constructing the link with round sides or legs and with D-shaped ends, the vertical section or face of the D being presented inward to afford a larger bearing-surface against the side of the pin, thereby avoiding many of the difficulties and much of the wear which attend the use of the ordinary link and pin. * * *

"The rod of which the link is formed, being cut to the proper length, is bent at its center, as at *B*, until the legs or sides are parallel to each other. The two free ends are then bent inwardly toward each other and welded, a die or dies being employed, which leave the welded end of the link in the D shape, shown in fig. 3. The opposite end is upset against a flat-faced die or dies, which gives the similar D shape to this end of the link."

Mr. Bridge says further, that when the ends and sides of coupling-links are both made of D-shaped iron, that there is a waste of material because the sides are stronger proportionally than the ends. If made as he proposes, he claims



BRIDGE'S CAR-COUPLING LINK.

that there is no such waste, while the relative strength of the legs or sides and ends is preserved and made uniform.

The following is the claim in his specification:

"A car-link having its side-bars parallel to each other and circular, and its ends D-shaped in cross-section, whereby the inner surfaces of the ends are vertical and parallel to each other and the entire outer surface of the link convex, substantially as and for the purpose specified."

Sheffield's Hand Car.

Mr. George S. Sheffield, of Three Rivers, Mich., has patented an improved hand car represented by figs. 1 and 2.

The objects aimed at are to provide a propelling lever which will be located between the two persons on the car so that it can be operated jointly by them with less labor than is required by other cars.

The combination of the foot-rests with the operating-lever, it is said, enables the latter to be manipulated both by the hands and feet of the operators, thus multiplying the propelling power. Another object aimed at is to provide the car with improved devices for supporting a tool-box.

With these ends in view, foot-rests are secured to the lever; a lateral arm, adapted to support the small guide-wheel of the car, and an adjustable brace connected with this arm are provided, the two being adapted to support a tool-box or other receptacle.

The engravings show the construction of the car quite

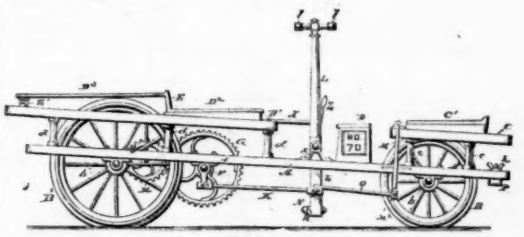


Fig. 1.

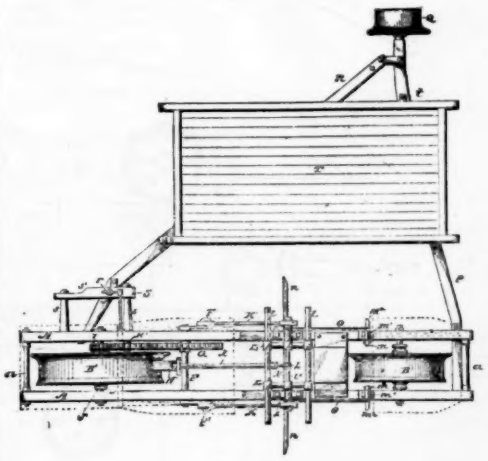


Fig. 2.

SHEFFIELD'S HAND CAR.

clearly. The description and claims in the patent are quite lengthy, so that those wishing further information are referred to the specification. Its number is 260,903, and it is dated July 11, 1882.

Safety Attachments to Locomotive Boilers.

(*Paper read at the Convention of the Master Mechanics' Association, by Mr. Berkeley Powell.*)

There are many problems affecting the safety of modern railroad traffic which still await solution, and concerning which we are painfully in the dark. Many difficulties have already been faced and scientific truths extracted from perfect labyrinths of practice and experience by patient persistent plodding. Others are in a semi-transition state, the task of reform but partially completed.

To this latter class belongs the problem of rendering more secure and less liable to injury by collision or when an engine runs off the track, the numerous attachments to the locomotive boiler.

To effect this successfully it seems desirable to reduce the

number of openings into the boiler to a minimum, and to provide such openings when feasible with a valve opening into the boiler.

This valve could close by the pressure of steam in the boiler if an attachment gets knocked off, thus preventing the escape of steam, and lessening very materially the terrible pain and torture so frequently inflicted.

Mr. M. N. Forney's paper on "Attachments to Locomotive Boilers," published in last year's report of this Association, made a strong and touching appeal for light in this direction; it should serve as a fog signal until we can see our way more clearly to avoid the known defects and danger of our present construction.

The most popular method of reducing the number of openings into the locomotive boiler for steam purposes is to convert the steam-gauge stand into a steam chamber and use this for supplying several attachments, while but one opening into the boiler is necessary. This plan, of course, has some advantages, but the attachments, together with the stand, are each subject to injury. I do not think that inventors or designers have usually aimed at making this stand secure in case of accident; their efforts have rather tended toward display and elaborateness, until the primitive stand, a small casting for holding the steam-gauge, assumes proportions which are frequently imposing.

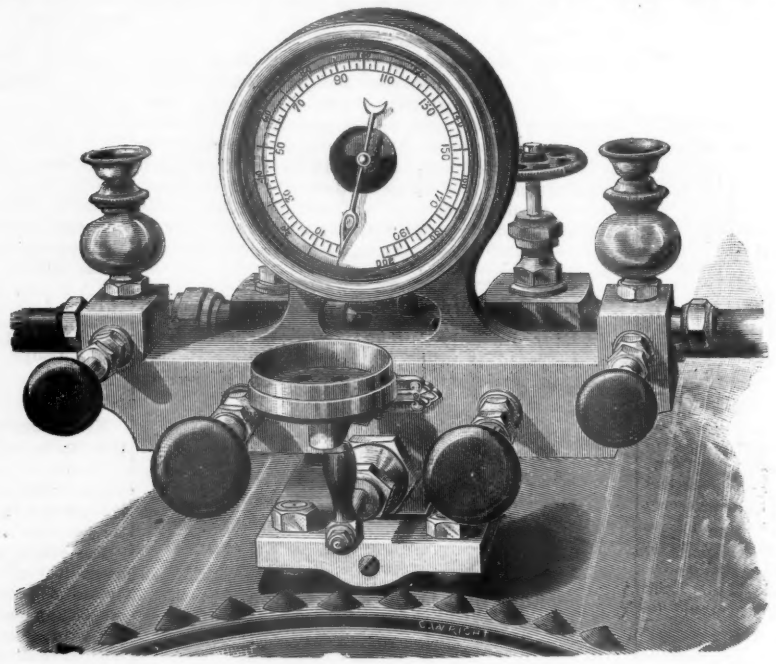
To Mr. Jacob Johann first belongs the honor of making public a steam-gauge stand provided with a safety valve opening into the boiler which closes when an accident breaks off the stand. I have taken the liberty of incorporating this invention in the drawings of a steam-gauge stand accompanying this paper. It is a difficult matter to so design a stand intended to receive boiler attachments, that it will, when completed, be compact, easily accessible, readily cleaned and cheaply manufactured. The injector valves are usually a great source of trouble, and to save complication and appearances, are frequently screwed into the boiler direct. When made an appendage to the stand the ordinary form of valve requires such alteration as will make it convenient for the engineman to handle without removing the injector pipes from the neighborhood of the boiler.

It is very trying to step into a locomotive cab and see injector pipes running in a variety of sinuous courses, or note the boiler attachments located without regard to mechanical precision, scattered here and there wherever the workman may happen at the time. I would suggest attaching the injector valves by a tee-pipe to the back of the stand (as shown at *A*, figs. 3 and 4) and giving them parallel sides and rectangular corners so they may be finished cheaply, also placing the injectors on line with the valves so that the pipes could be curved concentrically with the crown sheet of the boiler. The tee-pipe forms a convenient place to attach the steam gauge syphon (*B*, fig. 4) and if thought desirable in order to still farther reduce the number of openings in the boiler, the whistle pipe could also be attached there. In this case the whistle would require to be placed over the cab with a globe valve between it and the tee-pipe to be used in case the whistle only gets knocked off. The handles (*CC*) for operating the cylinder oiling cups, the blower valve, the valve for Westinghouse pump, and the cam which controls the safety valve opening into the boiler all face the engineman and are equidistant from the stand. The steam-gauge stand has parallel sides and rectangular corners so that it may be finished as much as possible by machinery and is held to the boiler by four studs. It seats in a quarter-turn attached to pipe running forward into the dome. Just above the flange and below the steel cam and spindle, the stand is weakened by cutting a light groove all round it. Here the stand will be likely to break when the injury is sufficiently severe, and the valve opening into the boiler, released from the control of the cam, is instantly closed by the steam pressure in the boiler.

To the drawing of the steam gauge stand I have added one (figs. 6 and 7) of a safety check-valve which is designed to sit in its ordinary position on either side of the barrel of the boiler. The valve casing is attached to the boiler by a stout flange and studs. The steel pin which is let in from the top of this flange allows the safety valve opening into the boiler and seated on the casting to travel back and forth so as to form no impediment to the ingress of water to the boiler.

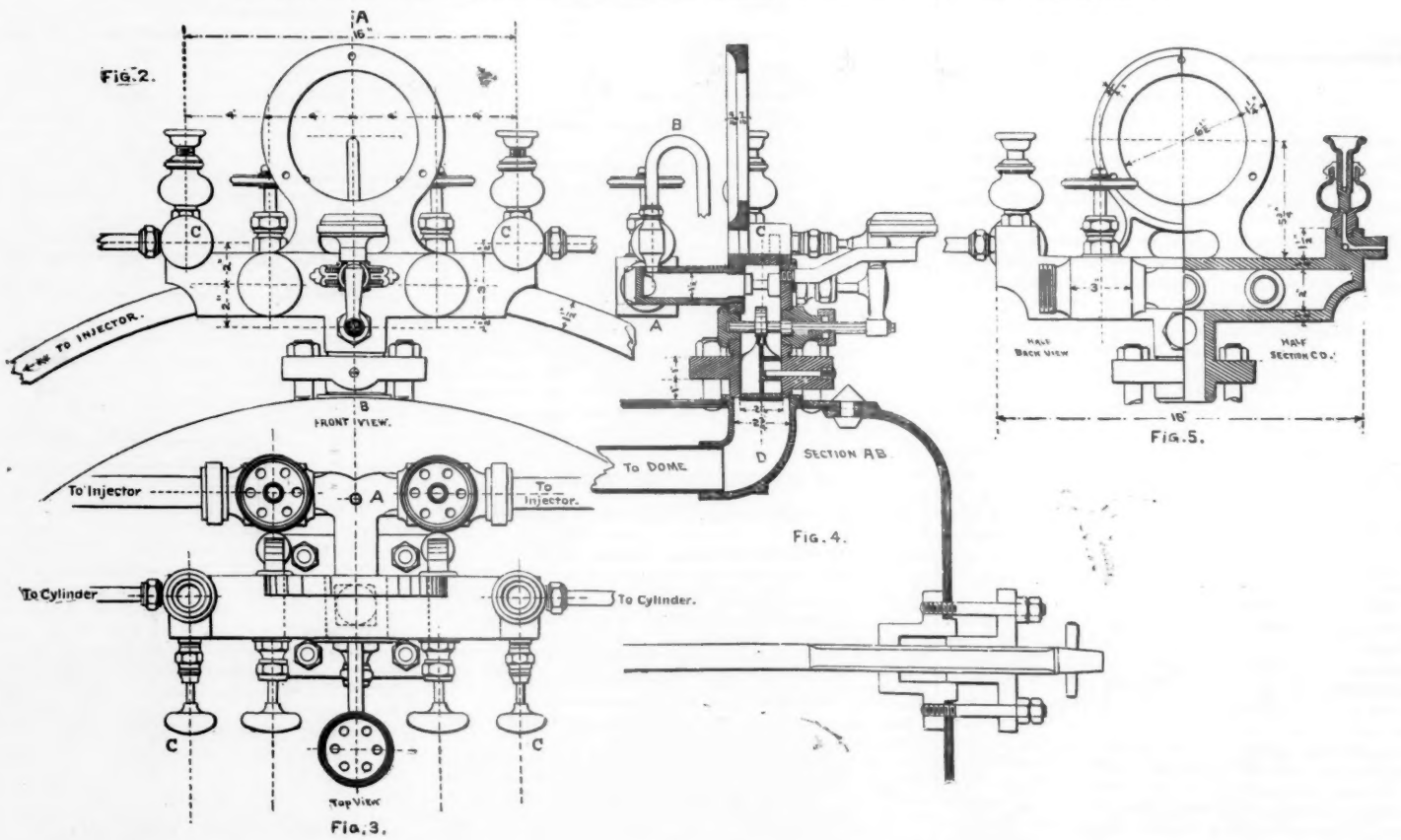
A groove is cut all around the neck of the casing close to the flange; here a fracture will take place in case of sufficient injury leaving the safety valve securely seated inside the boiler. By using this arrangement engine-drivers will be enabled to examine and grind check valves when the boiler is under steam pressure. A small cock could be attached to the bottom of the neck far the purpose of removing any water that might be present. When the safety valve requires examining the entire casing may readily be removed without disturbing the lagging, by adopting the plan shown in the drawing. It will be seen that the ten attachments most liable to injury in a collision, or when an engine runs off the track, have been given but three openings into the boiler, and each of the three provided with a safety valve, simple in design, instantaneous in its action, and which does not interfere with the practical working of the attachments.

I earnestly trust that the problem of preventing accidents to persons by the escape of steam from locomotive boilers may soon be solved, and that the accounts of their terrible and appaling results, seen so frequently in our newspapers, may become a thing of the past.



STEAM GAUGE STAND.

Designed by Mr. Jacob Johann, General Master Mechanic Wabash, St. Louis & Pacific Railroad, Springfield, Ill.



THE SCRAP HEAP.

Not an Uncommon Accident.

The following telegram from Anoka, Minn., Aug. 19, describes an accident which could be duplicated almost any day, except that the present case derives peculiar horrors from the number of the killed and their youth:

"A terrible accident occurred at this place last night, four people being run over by cars and killed. When the northbound passenger train on the Manitoba road arrived at the de-

pot at half-past ten, the engineer reported that he struck something heavy at the crossing about a mile below town. A party going back to investigate found that the object struck was a carriage. The horses were found dead with fragments of the buggy some ten rods beyond the crossing and between that place and the crossing the bodies of four people were found horribly mangled. The remains were taken to the depot and finally identified as Wm. Hacket, Jasper Cole, Miss Florence Parker and Miss Lillie Dawson. They were crushed and bruised so that identification was difficult. When found Cole alone was breathing, the others being killed instantly, and he died soon after. The girls were apparently about 17 years of age and the men 22 or 23. They had attended a dance at Crooked Lake, about three miles from Anoka, in the evening, and were returning when the accident happened. It is supposed it was due to the driver's carelessness. The road is on the open prairie at the crossing, and runs along for some distance nearly parallel to the track. It is supposed they attempted to cross ahead of the train, which runs very rapidly at this point."

British Rail Exports.

Export of steel and iron rails from Great Britain for the month of July and the seven months then ending to the United States, and to all countries for the past three years, have been :

To the United States :

	July.			Seven months.		
	1880.	1881.	1882.	1880.	1881.	1882.
Iron rails	7,785	0,628	46	70,456	71,813	20,613
Steel rails	7,054	20,096	18,200	76,961	112,842	119,434
Total	14,839	26,824	18,246	141,417	184,655	140,047

Exports of iron rails to this company were almost *nil* in July, and for the seven months they are only about two-sevenths what they were last year and the year before. Of steel rails, the exports to this country were 9½ per cent. *less* than last year in June; for the seven months they were nearly 6 per cent. *more* this year than last and nearly 70 per cent. more than in 1880. They were, however, 9½ per cent. *less* than in June. Of both kinds, the exports to this country over the seven months were 24 per cent. less than last year, and a little less than in 1880.

The exports to the United States from month to month, have been :

	1880.	1881.	1882.
January	15,291	7,368	27,267
February	12,770	14,799	23 178
March	14,528	25,720	22,265
April	20,802	38,402	16,211
May	29,273	39,844	11,657
June	33.914	31,698	21,223
July	14,839	26,824	18,246

To all countries the exports were :

	July.			Seven months.		
	1880.	1881.	1882.	1880.	1881.	1882.
Iron rails	10,754	9,512	2,417	94,526	82,939	36.013
Steel rails	53,798	65,100	74,878	287,357	322,487	432,697
	64,543	74,612	77,295	381,883	415,426	468,710

The exports of iron in July are but about one fourth those of 1881 and 1880, and for the seven months are not half as great. The exports of steel, however, are largest this year, 15 per cent larger than last year in July and 30 per cent. larger for the seven months. The exports to other countries than the United States shows a very large increase —from 240,466 tons in 1880 to 230,771 in 1881 to 328,663 this year—an increase of 42½ per cent. over last year.

The chief increase in exports has been to British India and to "other countries."

Heavy Freight Charges.

An extraordinary sale of pig iron, so far as price is concerned, was recently effected at St. Louis. Six tons of Alice iron from the Alice Furnace at Birmingham, Ala., and six tons of Diamond foundry iron, from Georgia, were sold to a large firm of iron founders in Helena, Montana. The price of the Alice iron was $20 at the furnace, and the cost of the iron delivered was $105 per ton, making $85 freight. The distances of the shipment are as follows: From the furnace to St. Louis, 800 miles; to Omaha, 495 miles; to Ogden, 1,032 miles; to Dillon, 348 miles—a total of 2,675 miles by rail. The distance from Dillon to Helena is 120 miles, over which the iron will be hauled by wagons, making a total of 2,795 miles.—*St. Louis Commercial Gazette.*

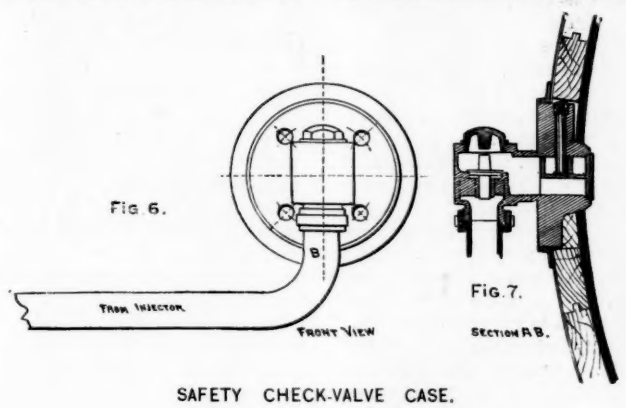
Speed of Modern Steamships.

Thirty years ago 16 days was a fair allowance for the passage between England and New York by steam. By gradual steps the point was reached when 11 days was the minimum, and this startled the world. Then began a rivalry between the Inman and White Star lines, attended by a succession of runs showing a gradual increase of speed, which proved a great advertisement for these lines. In 1871 the average time of 24 crack voyages by these lines was 8 days 15 hours and 3 minutes. The "Adriatic's" best westward time was 43 minutes less. It should be remembered that the westward passage is generally longer than in the other direction, owing the westerly winds and the Gulf Stream. In emulation of this speed in 1877 the "City of Berlin," of the Inman line, made the trip to Queenstown from New York in 7 days, 14 hours and 12 minutes, and in the same year the "Britannic," of the White Star line, crossed from Queenstown in 7 days 10 hours and 53 minutes. In 1879 a new rival appeared in this field, the "Arizona," of the Guion line. This steamship made the eastward passage in 1880 in 7 days 10 hours and 40 minutes, and in one trip in 1881 she lessened this time about three hours. This seemed to be about the best that could be expected of these superb ships, when the new Guion steamer, "Alaska," after a number of astonishing runs, accomplished the westward passage between the two ports, on April 18, 1882, in 7 days, 6 hours and 20 minutes, actual time, against heavy seas. In a subsequent trip eastward she ran the distance in 6 days and 22½ hours, actual time. In this, the quickest passage ever made across the Atlantic, the "Alaska" traveled 2,895 knots, being an average of about 418½ knots per day, for seven successive days. It will be observed that the increase of speed has been graduated in proportion to the gradual increase of size. The ships of 1850 were rarely much over 2,500 tons, and were barely 300 ft. long. Now the average length of ocean steamers is upward of 400 ft., while 500 ft. is not uncommon. The "City of Rome" is 586 ft. long, and registers 8,826 tons; The "Servia" is 530 ft., and 8,500 tons; the "Alaska" is 520 ft., and 6,932 tons. The "Austral," intended for the Australian trade, is 474 ft. long and 48 ft., 3 in. broad, and registers 9,500 tons. The measurements of this vessel, and of the new Cunarder "Cephalonia," which is 440 ft. long by 46 ft. beam, indicate that the reaction against extreme length has already commenced in the great ship-yards of Great Britain, being in each of these cases less than ten beams to the length.—*The Century for September.*

Baggage.

He looked into the station, and watched the movements of the baggage smasher. He saw him raise the two-story trunk at arm's length, and hurl it, like a Zazel from the monster gun, through the circumambient air; he heard it go crashing into the hashed baggage that had preceded it; he heard the agonized cry of the owner, and the imprecations of her husband; he saw the two hug the brass check which now, alas! represented only a dim memory of the past. Then he turned him sadly about, and, as he walked away from the scene of slaughter, he was heard to murmur: "There is no change even here! Oh the monotony of this hum-drum life!"—*Boston Transcript.*

Even the despised trunk, like the proverbial worm, will turn on its smasher occasionally, though with very little success. A few days ago a baggageman on the Moberly division of the Wabash, between Kirksville and Queen City, was working in his car, piling trunks, the train running at the rate of 30 miles an hour. He seized hold of a trunk by the strap, when it gave way and the baggageman fell out of the door of the car, alighting on his back at the foot of an embankment. The train was stopped and run back, the trainmen fully expecting to find their companion dead. They met him walking up the track, with but a few slight scratches and bruises to show as the result of his fall.



SAFETY CHECK-VALVE CASE.

Designed by Mr. Jacob Johann.

ANNUAL REPORTS.

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Long Island	71
Louisville, Cin. & Lexington	54
Louisville & Nashville	450

Flint & Pere Marquette.

The report of the directors of this company for 1881 gives the following statements. The road in operation Dec. 31 was as follows:

	Miles.
Ludington to Monroe	253.31
East Saginaw to Bay City	12.35
Otter Lake Branch	19.51
South Saginaw Branch	3.94
Harrison Branch	15.50
Saginaw & Mt. Pleasant R. R.	15.02
Manistee R. R.	25.53
Total	345.16

There are 111.29 miles of sidings, making 465.45 miles of track in all, of which 283.44 miles are laid with steel rails.

The increase in mileage during the year was 5.10 miles on the Otter Lake Branch, and 22.35 miles on the Manistee road. The new mileage did not come into use until the close of the year.

The equipment consists of 62 engines; 43 passenger, 10 parlor and sleeping and 15 baggage, mail and express cars; 754 box, 8 stock, 967 platform and 26 caboose and way cars; 16 service cars and 2 snow-plows; 85 hand and 75 lorrie cars. There are also 2 engines, 2 passenger and 1 baggage car, 10 box and 15 flat cars on the Saginaw & Mt. Pleasant road, which is of 3 ft. gauge.

The general account, condensed, is as follows:

Preferred stock		$6,500,000.00
Funded debt		4,821,560.00
Premium on bonds sold		107,757.25
Land income applied to reduce funded debt		389,000.00
Accounts and balances		444,412.14
Income account		19,123.63
Total		$12,281,853.02
Road and equipment	$11,361,845.01	
Stocks, etc., owned	541,381.30	
Fuel and materials	217,776.70	
Accounts and balances	113,645.77	
Cash	47,204.24	
		12,281,853.02

There is also $3,500,000 common stock, which does not appear in the accounts. The interest charge for the present year is $289,873.60.

The report says: "At the date of the last annual report an option had been offered to holders of the 8 per cent. land-grant bonds of the company, to exchange them within a certain time, for new 6 per cent. bonds at par. This exchange was made to the extent of $1,058,000, and the application of land funds reduced the balance of such bonds outstanding to $257,000 on Dec. 31, 1881. These were called for redemption March 1, 1882, and all have been redeemed and canceled at date of this report except $13,000 not yet presented for payment. Interest ceased on them March 1, 1882.

"At date of organization of this company there were $556,840 past due prior coupons outstanding, which it was proposed to fund into 6 per cent. bonds. Of this amount $533,560 had been funded up to the close of last year, and at the present time there are outstanding but $12,600 coupons of land-grant bonds and $920 coupons of Holly, Wayne & Monroe bonds."

The traffic for the year was as follows:

	1881.	1880.	Increase.	P.c.
Passengers carried	813,131	712,209	100,922	15.6
Passenger-miles	24,449,195	20,950,290	3,498,905	16.7
Tons freight carried	1,013,965	....	....	....
Ton-miles	80,894,052	....	....	....

The chief items of freight were 300,497 tons lumber in various forms; 351,260 tons logs; 38,648 tons grain; 33,221 tons feed and hay; 72,397 tons salt. Of the total tonnage forest products formed 64.28 per cent.; agricultural products, 8.94 per cent., and salt, 7.14 per cent.

The earnings for the year were as follows :

	1881.	1880.	Inc. or Dec.	P.c.
Freight	$1,157,367	$994,369	I. $162,998	16.4
Passengers	655,478	565,288	I. 90,190	16.0
Mail and express	43,689	39,690	I. 3,999	10.1
Miscellaneous	28,880	277	I. 28,603	....
Total	$1,885,414	$1,599,624	I. $285,790	17.9
Expenses	1,315,322	1,145,929	I. 169,393	14.8
Net earnings.	$570,092	$453,695	I. $116,397	25.7
Gross earnings per mile	5,934	5,078	I. 856	16.4
Net earnings per mile	1,974	1,428	I. 306	25.7
Per cent. of exps.	69.76	71.64	D. 1.88	....

The gross and net earnings are the largest ever reported for this road.

The Land Department reports sales of 21,682 acres for $306,508.88. Timber sales during the year amounted to $23,665.20, and town-lot sales to $297. Collections during the year were for principal $381,448.76, and for interest, $65,334.45. Total sales to Dec. 31, including town-lot and timber sales, were $4,162,981.41. Expenses last year were $17,091.64; taxes paid, $13,360.69. The assets at the close of the year were 138,454 acres of land unsold, and land notes amounting to $902,058.73, principal and interest.

The income account is as follows :

Undivided earnings, Jan. 1, 1881		$132,585.69
Net earnings for 1881		570,092.08
Total		$702,677.77
Interest, receiver's certificates	$11,322.61	
" bonds	310,796.05	
Loss on steamer "St. Albans"	3,935.48	
Dividends on preferred stock	357,500.00	
		683,554.14
Balance, surplus		$19,123,63

There were used in renewals during the year 4,000 tons of steel rails and 191,863 new ties. The dividends were 5¼ per cent.

During the year the Manistee Railroad was completed to Manistee, at a total cost of $368,605. The entire stock is owned by this company.

The Otter Lake Branch was extended to Watertown, 5.10 miles, at a cost of $40,705. A span was built from near Bay City to the salt works on Crow Island, 2 miles

Right of way into East Saginaw and the use of the station there was granted to the Port Huron & Northwestern road, and a contract made for interchange of business.

The Saginaw, Tuscola & Huron road, now under construction, is chiefly owned by stockholders of this company, and will be operated in its interest. This road has the use of the station and yards at East Saginaw.

A new brick shop has been built at East Saginaw, and many other improvements have been made on the line.

Contracts were made for two wooden screw steamers for use on Lake Michigan, which are to be ready in September next.

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Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage*

WHEEL GAUGES AND FLANGES.

The communication on this subject on another page, from the engineer of the Atchison, Topeka & Santa Fe Railroad, will be found worthy of the careful attention of all car-builders and master mechanics. The fact that there is a variation of 1⅛ in. in the gauge of wheels, or in the distance apart of the flanges of wheels, may well cause railroad managers and travelers uneasiness. Taken in connection with the variation in the sizes of flanges and the fact that these must unerringly pass through the openings in frogs, which are only 1¼ in. wide, it will be seen that there is abundant reason for apprehension when there is as much difference as Mr. Lake has shown exists on the cars and engines that pass over the Atchison, Topeka & Santa Fe road. The condition of things there is not exceptional either. Others who have carefully investigated this subject have found even greater differences than those noted by Mr. Lake, and on any road where there is a considerable number of freight cars, investigation would probably reveal a similar condition of things. Besides, to this variation in the gauge of wheels must be added the fact that neither wheels nor axles are perfectly rigid, and that the former are often very far from being true, circumferentially or laterally. Experiments have been made repeatedly which have shown that when cars are loaded there is a very material spring of the axle, and probably, to a very small extent, of the wheels also. Mr. Hayes, of the Illinois Central, made some experiments, a report of which was published in the *Railroad Gazette* of Aug. 31, 1877, in which he found that the distance between the flanges at the bottom of the wheels, when the car was unloaded, was $\frac{3}{64}$ of an inch greater than at the top, and with a load of 36,000 lbs. evenly distributed in the car the difference was $\frac{9}{64}$ in. These differences were noted with the car at rest; what they would be with the car loaded with 20 tons, as many now are, and running over the irregularities of frogs at 30, 40 or 50 miles an hour, it is impossible to know without experiment. That it may be double the above amount, or even more, is quite possible.

It is true too that the variation from the true gauge due to the spring of the axle is only one-half the difference noted in the distance between the flanges on top and on the bottom of the wheels, because the wheels below are brought nearer together by the spring of the axle, and farther apart above. As has been stated, it is not at all improbable that when a car heavily loaded passes over a frog the wheels are sprung a half-inch or more farther apart below than they are above, so that the wheels which are 1⅛ narrower in gauge than the widest would be 1⅛ in. narrower under the influence of the shock.

It will be noted, too, that Mr. Lake, who is a civil engineer, has investigated and reported inaccuracies and defects existing in the car and locomotive departments, and the work turned out by car and locomotive manufacturers, a knowledge of which is, of course, in the highest degree desirable. If, on the other hand, master mechanics and car-builders were sent out on the road to measure and report on the inaccuracies and discrepancies existing in the work of the engineers, in laying and maintaining the track, frogs, crossings, switches, guard-rails, etc., they would probably find that things there are not quite all as they should be. It is not at all probable that the engineers or road-masters will report the defects in their own work, nor is there any reason to believe that the master mechanic or car-builders are any more impartial or disinterested; so that it might be a good thing for a general manager or superintendent, occasionally, to have the heads of the mechanical department inspect and report on the gauge of the track, and the track-men do the same with reference to the rolling-stock. That there is a very considerable variation in the practice of different road-masters in laying frogs, switches, etc., a little intercourse with them will soon reveal. Track-laying is as yet very far from being an exact art in science. Some track-men, for example, will lay a cross-over a "leetle wide;" others more so, and some men have been known to narrow the gauge at such points. In some cases the throats of frogs are made 1¼ in. wide, in others 2 in.; and possibly even greater differences prevail in practice. Besides the variations in the standards there is, owing to what Artemus Ward called "the cussedness of inanimate things," the ever present and always existing tendency of men, tools and matter to go and to get and to stay wrong. The chances of being so are infinite, while there is only one entirely right way.

It is then probable that, besides the variation in the gauge of wheels due to the causes pointed out, there are inaccuracies in the track, for analogous reasons. If there are differences of 1⅛ in. in the gauge of wheels, it is quite within the range of possibility that there may be an equal amount in the gauge of the track or the location of frogs or guard-rails. This would be equivalent to a difference of 3½ in. when the narrowest wheels ran over the widest track, or *vice versa*. It may be said that it would be impossible to get such a car over such a track; to which it may be replied, on the one hand, that the frequent derailments are evidence of the correctness of that view, but on the other the experiments of Mr. Hayes and others, showing the amount which car axles will and do spring, and the fact that neither rails, spikes nor cross-ties are absolutely rigid, indicates there is, fortunately, great capacity of adjustment to the defects of each other in both wheels and rails.

To secure as nearly absolute safety as possible, it is of the utmost importance, though, that there should be some co-operation among railroad companies to bring about agreement, or to adopt some uniform and efficient system of gauging wheels. The reorganization of the Master Car-Builders' Association happily affords the means of doing this, and railroad companies will not be serving their own interests if they are not represented and do not take part in its deliberations.

But even if a standard system of gauging wheels should be agreed upon and be generally adopted, some kind of executive organization will still be required in every shop to see that the system is carried out. If it is left to workmen, without adequate supervision, the work is certain to be done carelessly at times. To secure uniformly good work, an efficient system of inspection must be organized; that is, the man or men who do the work must not be the sole judges of it, but there should be another trustworthy person appointed to inspect and test the work, to see whether it is all right. Every axle, after it is turned, should be gauged, and every wheel when it is bored should be measured, to see that they are of the right size. When the wheels are pressed on they should again be tried, to see whether the gauge is right, whether they are near enough to being round and true laterally, and whether they are both the proper distance from the journals. They should also be tested to see how much they are out of balance. Unless wheels and axles are thus inspected, inexperienced or careless boys or men are sure to do bad work at times, which ought never to go into service.

The "points" which Mr. Lake propounds as having more or less weight in the consideration of the wheel-gauge question are very timely. They might, however, be propounded in the interrogative form and made somewhat more comprehensive with advantage. It is evident that the form of wheel flange and tread have some influence—how much is not known—on the resistance of cars to traction; but it is also evident that it is influenced to some extent by the form of the rails. The same thing is true of the wear of wheels and rails. This is reciprocal, and therefore it is important that the shape of the one should bear the proper relation to that of the other. The inquiry would perhaps be more comprehensive if stated as follows:

1. What form of wheel flange, tread and rail section will give the minimum resistance to traction and to wear and the least liability to leave the track?

2. What should be the gauge of such wheels and of rails at frogs and switches?

As Mr. Lake says, these questions can only be authoritatively decided by careful experiments, and, it might be added, if made by a competent person. Possibly in some future millennial period such work may be done, but at present it is easier to get aid in manipulating a "blind pool" than it is to induce those who control our railroads to help to remove blind ignorance. Still there is reason for believing that the reorganized Car-Builders' Association may prove a veritable electric light, to illuminate some of the places in which we now grope in darkness.

THE ENGLISH INVESTIGATION OF RAILROAD RATES.

The leading countries of Europe have nearly all recently made official investigations of railroad rates and other railroad practices. Several of these investigations were in progress at the time the committee of the New York Assembly was making its inquiries on the same subject. The most complete one, perhaps, was made in Italy, by a large commission, including experts and economists, who investigated nearly the whole field of railroad operation, spent some years in the work, and reported about a year ago in six great volumes. This inquiry was mainly for the purpose of ascertaining how the Italian railroads, which had recently been purchased by the government, should be worked. At the time they were chiefly worked, we believe, by the companies from which they had been purchased, and it was a much mooted question whether this arrangement should be continued, whether the government should work its roads directly, as the Prussian and other German governments work their state roads, or whether some other plan should be introduced. As the railroad policy of the kingdom was to be settled permanently, and the possession of the railroads gave the government an opportunity to establish any system that might seem for the public good, there was reason for a very thorough investigation and also for covering points which are not usually touched upon in this country and England, as the effect of government management on construction and maintenance, on enterprise and sagacity in establishing new lines, increasing accommodations, and generally in providing for future wants, as well as on affording good service to the public, providing for safety, and doing this at the lowest possible cost.

The conclusions of the investigators we know only from articles on the report in French and German journals. As we have stated before, the commission recommended that the lines be leased to corporations, to be operated by them under pretty close government control. This is the policy followed by the state of Georgia for the operation of its Western & Atlantic road, though the control which it exercises is little more than the provision that it must carry for all connecting lines alike. Whatever may be said against the Georgia plan (and all that we have heard against it is that it has been very profitable to the lessees), there can be no doubt that it is there a vast improvement over the policy of state management which prevailed before the lease.

For several years an investigation has been going on in Russia, and we believe that it is not yet completed. Several volumes of testimony have been published, we understand; but we hear little of the result except that many abuses were discovered, and many of the practices often considered abuses, which are inevitable in any rational or economical conduct of railroad business.

In France the investigation was largely devoted to rates and accommodations, but was probably prompted chiefly by a strong tendency in the Parliament to introduce state management partly or completely. There appears at present to be no tendency in that direction; at least the recent administrations have been opposed to undertaking it at this time.

In Germany investigation has been chronic, or something equivalent to it. For ten or twelve years, and until recently, there has been some movement towards revising rates and making them more uniform, one scheme being followed by another, and every tariff being submitted to revision almost as soon as adopted. For two or three years past, however, there has been what is called a uniform tariff, mitigated by numerous special rates, by which alone a "uniform" tariff can be made tolerable. There are propositions made frequently to modify this tariff; but on the whole the country seems better satisfied with its rates than here-

tofore. So large a proportion of the roads are worked by the governments now that the work of investigation and modification is greatly simplified. The national authority, representing all the public interests, has at once all the information and all the power.

In Austria and Hungary the course has been quite similar to that in Germany: many investigations and attempts at revisions of rates. State management has made less progress there; but these countries seem inclined to follow in the footsteps of the German states.

In Great Britain complaints, judging from the newspapers, have been less than on the Continent or in this country, though there the companies are subject to very few restrictions, other than the high maximum rates prescribed in their several charters, and the rates are actually there much higher than in the leading continental countries.

It has been more difficult to ascertain freight rates in Great Britain than in almost any other civilized country, and average rates per ton per mile are absolutely unknown. There have been some complaints of discriminations, and more of the conduct of companies; and much has been said of their power and irresponsibility. But in the several valuable investigations ordered by Parliament there has hitherto been little definite said of rates. Last year, however, a committee of the House of Commons began an investigation directed especially to this subject. It took testimony in several parts of the kingdom, and last winter made a preliminary report, asking to be continued. Last month it made its complete report, which we publish this week and especially recommend to the attention of our readers.

Not the least notable fact connected with this inquiry is the composition of the committee. Here it is commonly assumed that in investigating railroad business it is necessary to exclude from the investigators all those who know anything about or have any interest in the business. The British committee consisted of 27 members, seven of whom were railroad directors, and three were among the most eminent railroad managers in the kingdom—Sir Daniel Gooch, Chairman of the Great Western Railway Company; Sir Henry Tyler, President of the Grand Trunk of Canada, and Sir Edward Watkin, Chairman of the Metropolitan and two other prominent companies. This is as if a Congressional investigating committee in this country should include such men as Mr. Albert Keep, Mr. John C. Gault, Gen. John H. Devereux, Mr. Franklin B. Gowen or Senator Joseph E. Brown. Parliament is always full of railroad directors, and usually has many leading and active railroad managers, which very rarely occurs here, though Joseph E. Brown, of the Western & Atlantic, is still in the Senate, and Chester W. Chapin and Alexander Mitchell were once in the House. We have, however, never had a Congressional railroad investigating committee, the nearest approach to it being the Senate Committee on Routes to the Seaboard. Our investigations are made chiefly by state legislatures, and these, unfortunately for the country, do not often contain many men of the calibre required for railroad managers, so that with the best disposition in he world it would be impossible to put such men on an investigating committee. It is desirable that such men should be there, precisely because they are interested parties; railroad business is an interest deserving the protection of the state like another, and there is no one so quick to find what legislation will hurt a business as those who are engaged in it. That their advice and recommendations should be followed implicitly we do not say; and of course they will be taken with due allowance for the fact that they come from only one of the parties interested. When the British committee was appointe d, the President of the Board of Trade, who was the Cabinet officer chiefly responsible for selecting the members, said that one of them represented the Board of Trade, two the legal profession, four agricultural interests, five the coal and iron trades, six manufactures and commerce, and seven the railroad interest, while one he was unable to classify.

We published last year some abstracts of the testimony of this committee, giving curious illustrations of the rates actually charged there and of the circumstances under which rates are reduced by the companies. Though the rates were generally what would be considered high here (the service, however, is generally more costly, and for much of the freight is almost equivalent to express service here), the application of them was varied precisely as it is here; that is, the English railroads, like ours and like sane business men everywhere, accept business at a very small profit when they cannot get it at any higher rate. The competition of the railroads with each other, however, has not nearly the same effect there as here; and on the other hand, their competition with the ocean affects a much larger proportion of their traffic. In 1872 no less than three-fifths of the stations were subject to this competition. And this competition is in some cases very severe, because it is itself produced by the competition of different steamer lines running over long routes. For instance, steamers from New York run to Liverpool and to London. The difference in distance may be two or three hundred miles, but it is but a small proportion of the whole voyage; and it is well known that such differences in distance have comparatively little effect on the cost or price of carriage by sea. Now, if the steamers carrying to Liverpool are to compete with those sailing direct to London for supplying the vast quantities of American flour, bacon, cheese, etc., consumed there, the railroads must carry these imports at very low rates from Liverpool to London. This they do, charging less—sometimes very much less—from Liverpool to London than on shipments from way points to London over a much shorter distance. Special import and export rates thus become inevitable in England, and are made so that the home consumer or producer has to pay a much higher price for the same services than the foreigner. In the case mentioned, however, the imports do not pay less or the home production more than if the railroad made no difference in the rates; only in that case all the shipments to London from America would go through by the London steamers and none of them by way of Liverpool. A very striking instance is that of American meat imported at Glasgow and sent thence by rail to London, competing there with Scotch cattle shipped over the same line and distance and charged a much higher rate, which the report cites at length.

On the whole the committe was unable to condemn unqualifiedly any of the cases of alleged "undue preference" brought before it.

The reforms which it recommends are chiefly in the way of securing inquiry into and affording a cheap and easy remedy for alleged violations of the law by illegal charges and undue preferences. This office it would have exercised by the present Railway Commission, made permanent, transformed into a regular court of record, and given the power to order through rates, on application, over connecting roads, not lower than the lowest rates the companies already charge for similar goods under similar circumstances; to determine the reasonableness of terminal charges (which are not now limited by law in most cases, as rates are), and to award damages. It recommends that trade organizations like chambers of commerce be given standing before the Commission, so that they may conduct prosecutions in behalf of their members, and that there be one appeal from the judgments of the Railway Commission, the lack of which has been the chief cause of complaint made by the railroad companies against the Commission.

These recommendations seem at this distance reasonable. The Commission has no power to reduce legal rates, as many in this country suppose, and its chief jurisdiction over charges is in determining what are reasonable discriminations and facilities. Very few cases, comparatively, involving such questions come before it; but the existence of such a tribunal tends to prevent causes of just complaint, and to establish in the community of shippers and carriers definite ideas of what is reasonable and what unreasonable in the way of differences in charges for carriage and terminal services.

Railroad Mileage in Europe and the United States.

We see, from time to time, tables of the railroad mileage in different countries of Europe and of the world, which usually either show the mileage two or three years before, or are largely made up of estimates, and are often grossly incorrect. The following, however, gives the mileage at the end of 1881 as found by the statistical department of the French Ministry of Public Works, and is probably quite correct. With the total mileage is given the length completed in 1881 in each country, and the population per mile of railroad:

	Total.	Built in 1881.	Population per mile.
Germany	21,313	331	2,154
Great Britain	18,157	164	1,939
France	17,134	895	2,170
Russia	14,745	3	5,586
Austria-Hungary	11,880	262	3,200
Italy	5,450	109	5,321
Spain	4,809	176	3,492
Sweden and Norway	4,616	273	1,408
Belgium	2,561	48	2,203
Switzerland	1,557	22	1,831
Holland	1,426	83	2,835
Denmark	1,053	25	1,919
Roumania	916	56	5,870
Turkey	866	....	2,891
Portugal	757	8	5,880
Greece	6	..	28,000
Total	107,306	2,455	3,168
United States	104,813	9,358	502

It appears thus that the total length of railroad in Europe at the end of last year was but 2,493 miles more than that in the United States. Since that time our mileage has grown so as to exceed that of Europe. We have built about 6,000 miles so far this year, and Europe certainly not more than 1,500. This gives us about 110,800 miles of railroad, against 108,800 in all Europe. We built last year nearly four times as much as Europe, and have to-day probably a mile of railroad to every 484 inhabitants, and are lessening the number at the rate of about 30 per year just now.

The difference in the numbers of persons per mile of railroad between this country and all others is extraordinary. The country in Europe with the smallest population per mile of road, Sweden and Norway, has yet nearly three times as many as the United States. And Europe altogether has *six times as many* people as the United States to support a mile of railroad. Were it not that our railroads are much cheaper than the European roads, and the situation of the country such that transportation adds immensely to the value of a very large part of its productions, it would be quite impossible for so large a mileage to be supported here.

July Accidents.

Our record of train accidents in July, given in full on another page, shows for that month a total of 92 accidents, in which 18 persons were killed and 56 injured. Fourteen accidents caused the death of one or more persons each; 12 caused injury but not death, while in no less than 66 accidents, or 71.7 per cent. of the whole number, there were no serious injuries reported.

Ten of the killed and 30 of the injured were railroad employés, while eight of the killed and 26 of the injured were passengers or others riding on the trains. Of the number killed 55.6 per cent., and of the whole number of casualties 54.1 per cent. were employes. This is a smaller proportion than usual, in a very small number of casualties.

In the 35 collisions, 13 persons were killed and 31 injured, 18 of these casualties being to employés; in the 53 derailments, 5 persons were killed and 25 injured, a total of 30 casualties, 22 being to employés. In the four other accidents, no injury to persons is recorded.

As compared with July, 1881, there was a decrease of 10 accidents, of 20 in the number killed and of 66 in that injured. The number of killed and injured is the smallest that we have reported in over a year past.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:		
Rear collisions	18	
Butting collisions	15	
Crossing collision	1	
Passing collision	1	
		— 35
DERAILMENTS:		
Broken rail	1	
Broken bridge	2	
Spreading of rails	5	
Broken axle	7	
Broken wheel	3	
Broken truck	2	
Wash-out	1	
Accidental obstruction	4	
Cattle on track	8	
Misplaced switch	4	
Malicious obstruction	1	
Unexplained	15	
		— 53
Broken connecting rod		2
Broken spring-hanger		1
Broken axle, not causing derailment		1
Total		92

Five collisions were caused by trains breaking in two; three by mistakes in or disobedience of orders; two by runaway engines; two by misplaced switches; two by failure to use signals when needed; one each by fog and by cars run out of a siding.

Of the two broken bridges one was a temporary trestle, which was being filled in; of the other we have no description, and know nothing of it but its failure.

The following general classification of these accidents may be made:

Causes.	Collisions.	Derailments.	Other.	Total.
Defects of road	..	8	..	8
Defects of equipment	7	12	4	23
Negligence in operating	28	4	..	32
Unforeseen obstructions	..	13	..	13
Maliciously caused	..	1	..	1
Unexplained	..	15	..	15
Total	35	53	4	92

This shows that at least 32, or 34.8 per cent., of the accidents were caused by deficient discipline or negligence. To these might possibly be added some of the unexplained derailments. It is not always possible to determine the cause of an accident, but it is sometimes possible for a trainman to cover up his own carelessness, leaving the result unexplained.

But one malicious derailment is reported; it was caused by an obstruction placed on the track.

One very unusual accident is recorded, which we have called a passing collision. It was caused by two cars on trains passing on the opposite tracks of a double track road, striking each other at the moment of passing. It is said that the tracks at that point are a little nearer to each other than is usual; nevertheless it is possible that trains may have passed there a hundred times without accident, because it required a peculiar and simultaneous movement of the two cars to cause the accident.

Of the whole number of accidents, 60 happened during the hours of daylight and 32 at night. In July the days are almost at their longest, reducing the number of night accidents

A division according to classes of trains and accidents is as follows:

Accidents:	Collisions.	Derailments.	Other.	Total.
To passenger trains	4	15	3	22
To a pass. and a freight	8	..	..	8
To freight trains	23	38	1	62
Total	35	53	4	92
Casualties:				
Killed by	13	5	..	18
Injured by	31	25	..	56
Total	44	30	..	74

This table shows that accidents happened to 127 trains, of which number 34, or 26.8 per cent., were passenger trains, and 93, or 73.2 per cent., freight trains. Could a complete record be made, the proportion of accidents to freight trains would probably be larger. Naturally, an accident to a passenger train is much less likely to escape notice and record than one to a freight.

It is to be noted that the collisions for the month were very much more fatal than the derailments. No very bad accidents are recorded.

The weather of the month was favorable, as is shown by the fact that only one wash-out is reported. The danger of the summer months is from sudden and violent storms, which result in accident before a warning can be given. Damage from long-continued rains can usually be foreseen and precautions taken in time to prevent serious trouble.

The peculiar feature of the month was the large number of butting collisions. A rear collision may be explained away sometimes, but a butting collision presupposes carelessness somewhere, either in the handling of trains or among the trainmen, and may always be charged to negligence in operating.

Another cause of accident which presupposes negligence is the misplaced switch. From this cause there were six accidents, two collisions and four derailments.

The breaking of trains in two continues to cause a considerable number of accidents, and these will still continue to happen until more attention is given to the coupling apparatus of cars, and to providing the additional strength needed to meet the increased weight of trains.

The number of broken axles and broken trucks indicates that overloading of cars is not uncommon. Agents and shippers are probably too eager to load cars as full as possible, without taking any trouble to ascertain whether they are in order for heavy freights, or are fitted for the old 10-ton loads only. Possibly some of them may have taken up the Master Car-Builders' discussion, and are experimenting in the direction of 30-ton cars, but have not waited until the new cars are provided. In many cases overloading is common, and is not only dangerous, but defrauds the companies.

For the year ending with July the record is as follows:

	Accidents.	Killed.	Injured.
August	129	31	67
September	144	56	227
October	131	31	133
November	133	50	120
December	113	36	96
January	137	41	198
February	88	23	69
March	99	29	101
April	81	18	61
May	94	24	86
June	72	35	193
July	92	18	56
Total	1,313	392	1,407
Totals, same months, 1880-81	1,444	412	1,665
" " " 1879-80	858	209	799
" " " 1878-79	837	213	807

The averages per day for the month were 2.97 accidents, 0.58 killed and 1.81 injured; for the year there were 3.60 accidents, 1.07 killed and 3.85 injured.

The average casualties per accident were, for the month, 0.196 killed and 0.609 injured; for the year, 0.299 killed and 1.072 injured.

The averages per month for the year were 109 accidents, 33 killed and 117 injured, against similar averages of 120 accidents, 34 killed and 139 injured in 1880-81; 72 accidents, 17 killed and 67 injured in 1879-80, and 70 accidents, 18 killed and 67 injured in 1878-79.

July was considerably below the average for the year in accidents, and its list of killed and injured was lighter than for many months past.

Foreign Railroad Notes.

The German Railroad Union has a body of uniform technical regulations, regarding the dimensions of rolling stock and construction of road, signals, etc., intended to make the roads in the Union so far uniform that there may be an unrestricted interchange of freight cars among them all, from the mouth of the Rhine nearly to the mouth of the Danube, and from Switzerland to Russia. These regulations have been modified from time to time, usually through a "technical convention" of the Union, which is a convention of the technical officers of the railroads in the Union—engineers of road and machinery, superintendents, telegraph managers, etc.—who are sent to represent the roads by the companies or "administrations" in the Union—more than half now being government administrations and not companies. The last general revision of the technical regulations (a translation of which was published in the *Railroad Gazette* several years ago) was made at a convention in Constance in 1876. Latterly a vast number of changes has been proposed. These are referred to a standing "Technical Committee" of the Union, which has lately completed a revised code, which was submitted to the several Union roads for their opinion and suggestions. This and the answers called out by it were discussed at a new technical convention of the Union held last May.

The changes recommended were largely the result of the progress in the art of railroading since the last code was made, but also are largely in the direction of giving freer scope to the railroad officer both in construction and in operation than has been done heretofore—that is, uniformity is not so much required as heretofore where it is not esential to free interchange among the roads.

A few changes may be mentioned: Heretofore the maximum speed allowed to locomotives was determined by the diameters of their driving wheels alone; now it is made dependent on the piston speed, the number of revolutions and the diameter of the driving wheels. The regulations concerning safety in operation are often made more severe, especially those referring to the size of car axles and journals.

The new code recommended by the technical convention was to be submitted to the general convention of the Union, which began its session in Breslau, July 31. This convention represents the administrations themselves, and its action will be binding. We might compare the technical convention to a combination of our Superintendents, Master Mechanics and Master Car Builders' associations, but all delegated by their companies, as the "representative members" of the Master Car-Builders' Association are to be hereafter, and reporting its proceedings to a convention of the highest officers of the companies, like our Joint Executive Committee; though the German Railroad Union has very little to do with the matters which most engage that committee.

There was recently a vote of the iron works which sustain the Board of Arbitration for the iron trade in the North of England to determine whether the Board should be maintained. Eleven works, having 4,117 subscribing members, voted in favor of the Board, and 9 works and 3,228 subscribing members, voted against it. At Middlesborough and Stockton 1,674 of the men voted against the Board and 1,111 in favor of it, while no less than 1,443 did not vote either way, and at Hartlepool also a majority of the men were opposed to the Board. At these places the men had struck against the award of the Board, which had been recognized as the authority for settling the disputes between the employers and the men for 13 years. It was decided to take another vote before the 26th of October, at which time an award expires by which both parties are bound. The large number of men not voting together with the large minority of men voting adversely makes the Board feel that it does not command the full confidence of the men.

A French engineer proposes to make a railroad so that it will need no work on the road-bed and ballast, by digging a trench in the solidified road-bed under the ballast, filling it with sand such as is used under paving stones, and placing on this sand a sort of iron caisson, which will serve as the sleeper. From the semi-fluid nature of the sand, he says that the superstructure will always maintain its level and never need tamping. "When the track is so laid," says he, "the road-bed may be seeded with grass and made into a green lawn, and we shall never have any dust. We shall be able to dismiss the whole force of men employed on the road-bed, for there will be nothing for them to do." That is, he would replace the ballast by two parallel trenches full of sand directly under the rails, which sand will be confined on top by a longitudinal sleeper hollow on the bottom. It does not appear that the plan has ever been tried. He would use it only on an old and solid road-bed.

The regulations of the German Railroad Union require that trains shall have the following proportions of the car wheels supplied with brakes, besides the engine or tender brake:

	Passenger train.	Freight train.
Grades up to 10½ ft. per mile	1 in 8	1 in 12
" " " 16 " " "	1 in 6	1 in 10
" " " 26½ " " "	1 in 5	1 in 8
" " " 53 " " "	1 in 4	1 in 7
" " " 88 " " "	1 in 3	1 in 5
" " " 132 " " "	1 in 2	1 in 4

The Prussian State Railroad Administration prohibits the use of "combustible material" as litter on the floor of open cars used for carrying stock. It has recently issued an order saying that sawdust mixed with wet sand and even sawdust sprinkled with water without the addition of sand will not be considered as combustible material, but that straw, chaff, turf and the like used for this purpose will be so considered.

It is proposed now to build an underground railroad in Paris, something like the London underground line—that is, a circle with several branches to the several railroad stations, etc. The general opinion was that an elevated railroad would be much better, but that it would be too costly, for in Paris the road would have to pay for its right of way. The projectors propose to carry passengers any distances for 10 cents first class, 4 cents second class, with workmen's tickets at 2 cents. The whole length proposed (not by any means in one line) is 21 miles, and the cost is estimated at $50,000,000, the gross receipts at $3,040,000, which is little more than 6 per cent. on the cost.

A Block System Which Does Not Block.

The *Railroad Gazette* of last week, with the article on signals, which contained some criticism of the Pennsylvania Railroad system, had probably not reached most of its readers before another serious accident occurred on that line, from a following train running into a preceding one near Bristol, on the New Jersey Division. The accident is described as follows in the New York *Times*:

"Three west-bound trains, made up of cars loaded with various goods, were running close together. The first stopped at the watering station, and this brought the second to a standstill. The men in charge of the third train, however, did not notice the stoppage until it was too late, and the engine went crashing into the caboose of the train ahead."

Six of the train-men were injured and ten cars of merchandise were wrecked.

The number of accidents of this kind which have occurred on that division naturally leads to inquiry as to what it is that is wrong with the signal system in the method of operating the road. The fact that other lines which are worked without the block system, and which have nearly or quite as much traffic as the Pennsylvania road, have fewer collisions, has been, and is, used as a very effective argument against the block system. That it is conclusive cannot be admitted, but it indicates that there is something wrong about the application or method of working it on the Pennsylvania road. Whether the difficulty comes from the fact that the freight traffic is worked on the permissive block, or that the system is not universally applied to the whole line, is not now clear. The lamentable accident which occurred near Pittsburgh a few years ago was certainly due to the fact that the system was not used on a short section of the line east of the Pittsburgh station. Other accidents have been accounted for in the same way.

It might be said, in reply to this, that a block system which does not block does not seem to have any adequate excuse for its existence or for costing a great deal of money. Its attitude is somewhat like that assumed by the Irishman who signed a temperance pledge and was found drunk soon after. On being reproached for it he excused himself by saying that it was true that he was a total abstinence man, but he was not "a bigoted one." A block system which did not block the whole line is like a temperance pledge which allows a toper to take an occasional drink.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Bangor & Katahdin Iron Works.—Extended from Brownville, Me., northward to Foster Brook, 10½ miles.

Chicago & Atlantic.—Track laid from near Hammond, Ill., east by south to Crown Point, Ind., 25 miles. Also, on the eastern end, extended westward to Kenton, O., 15 miles.

Coudersport & Port Allegheny.—Track laid from Port Allegheny, Pa., eastward 13 miles.

Danbury & Norwalk.—Extended from South Norwalk, Conn., southward to Wilson's Point, 1 mile.

Houston & Texas Central.—The *Northeastern Branch* is extended from Kaufman, Tex., northeast to Terrell, 13 miles.

Northern Pacific.—Extended westward to Billings, Montana, 39½ miles.

Sabine & East Texas.—Extended from Woodville, Tex., northward to Beaumont, 20 miles.

St. Paul, Minneapolis & Manitoba.—The *St. Cloud & Duluth Branch* is extended east by north to St. Francis River, Minn., 8 miles. The *Devil's Lake Branch* is completed from Ripon, Dak., northwest to Hope, 30 miles. The *Grand Forks Division* is extended from Dimock, Dak., north to Bathgate, 20 miles.

Tennessee & Sequatchie Valley.—Extended from Grand View, Tenn., west by south 7 miles. Gauge, 3 ft.

This is a total of 202 miles of new railroad, making 5,984 miles thus far this year, against 3,459 miles reported at the corresponding time in 1881, 2,853 miles in 1880, 1,476 miles in 1879, 1,049 miles in 1878, 1,013 miles in 1877, 1,273 miles in 1876, 613 miles in 1875, 962 miles in 1874, 2,252 miles in 1873 and 3,962 miles in 1872.

NEW REASONABLE MAXIMUM RATES have been agreed upon by the Illinois Railroad Commission. The Illinois railroad law prescribes that the Board of Railroad and Warehouse Commissioners shall issue schedules of "reasonable maximum rates," and that if the railroads charge any higher rates, the burden of proof shall be with them to show that they are reasonable. A year or so ago the Commission issued a new schedule, greatly reducing the rates. The roads felt inclined to accept this schedule, which, though lower for certain lengths of haul and classes, was higher on others than the railroads had actually been charging. But the railroads declared that in order to accept the rates that were lower they would have to put in force those which were higher, and ordered the withdrawal of all special rates, which were very commonly made to manufacturers, and, the latter said, were often indispensable to enable them to compete with Eastern manufacturers.

But thereupon the Commission again changed its rates by adopting a new classification, which put many of the manufacturers' freights into much lower classes, and so very greatly reduced the rates on them. This tariff the companies declared to be unreasonably low, and we believe that it was generally not observed. Recently the Commission has again revised its tariff, advancing the rates on short hauls, which is what the railroads objected to chiefly; and it is understood that this schedule will be generally observed by the railroads of the state.

All the railroad companies of the state are put into two classes, according to their gross earnings per mile, and a schedule is made for each of these classes. It is of course impossible to make any schedule for a dozen different railroads, varying exactly with the distance, which will be any restriction to more than one of the lines without injustice to most or all of the others, and the only schedule which can be prescribed as a maximum to a whole class of roads is one which permits the least prosperous of them to earn a fair profit. And in the Illinois system all the lines of one company are classed alike and given one schedule of maximum rates; though on such a road as the Wabash or the Chicago,

Burlington & Quincy the cost of transportation on one line may be five or ten times as much as on another.

The Illinois lines are not required to observe the Commissioners' rates; but if they exceed them, then they must prove to the satisfaction of a jury—that is, of a body of men who are all buyers and none of them sellers of transportation, and so interested in making rates as low as possible—that their charges are actually reasonable. The railroad companies naturally are not willing to contest the question in this way, and they will doubtless submit to a great deal of unreasonableness before they will come before the courts to prove affirmatively that their charges are reasonable to people who will have to be taught the whole subject of railroad economics before they can judge properly what makes rates reasonable.

CROP PROSPECTS are generally unchanged except by the progress of harvesting, which assures the prospects of the weeks before. The wheat harvest has now progressed so far that the grain is nearly all cut south of the line of the Hastings & Dakota Division of the Chicago, Milwaukee & St. Paul, and a great deal on that line, leaving that on the St. Paul, Minneapolis & Manitoba and the Northern Pacific yet mostly to be harvested. There is still the possibility of damage by protracted rains to grain cut but not stacked further south, but it is a remote possibility which a few days more of fair weather will remove. So far the only great damage reported by bad harvest weather is in Michigan and Northern Ohio. In Michigan it rained every day of the first eight days of August, and was warm. The reports sent to the Secretary of State are said to indicate that about one-fourth of the crop in the two southern tiers of counties, about 3,300,000 bushels, and one-half to two-thirds of that in the third and fourth tiers, about 8,000,000 bushels, were unsecured before the rain and "badly damaged."

The weather has generally been favorable to corn, which at this time last year was being destroyed by drought; there has been some injury by drought in Kansas and Missouri this year; good weather now lessens the danger from frost in September.

All the wheat that remains to be harvested probably does not amount to 30,000,000 bushels; and if this should be lost altogether the country as a whole would hardly feel it, though it would be a serious matter to two or three railroads and to the trade of St. Paul and Minneapolis.

Reports are generally favorable as to the cotton crop, which is better in the Gulf states, however, than further east.

This and the corn crop are now the only great crops that are still liable to great changes, the others being mostly secured. The demand for corn for immediate consumption is now partly supplied by new oats, of which there is an enormous crop, the yield per acre being perhaps as large as ever before and the area sown much larger. This is a great advantage everywhere, and especially in the South, where the purchase of corn at present prices to feed stock was exhausting the planters' resources. In the Gulf states, however, new corn will be fit to feed by the end of the month.

There have been wild estimates that this year's wheat crop would amount to about 600,000,000 bushels. The *Produce Exchange Weekly*, however, shows that should the average yield be equal to the largest ever known, the acreage as reported by the Department of Agriculture would produce but 517,500,000 bushels. Actually we shall probably have not far from 500,000,000 bushels, or nearly the same as the crop of 1880, while we have about 3,500,000 more people to produce and consume it, and about 18,000 miles more railroad to carry it.

THE DIVERSION OF GRAIN TO THE MISSISSIPPI ROUTE is said by the Chicago *Tribune* to be general, and to be caused by "high" rail rates to the sea-board, from Missouri River points and from Chicago and St. Louis. That the present rates should be called high is a natural consequence of railroad wars which accustom the public to rates far below cost; but before considering what has caused a great diversion of grain from the railroads to the river, we will do well to see what the diversion has been. Now the shipments of grain of all kinds by rail, river and lake from the eight reporting Northwestern markets—St. Louis, Peoria, Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland—in each of the past six weeks have been :

	Bushels.			Per c. of total.		
Week to	By rail.	By river.	By lake.	By rail.	By river.	By lake.
July 8....	815,201	12,599	1,104,549	42.2	0.6	57.2
" 15....	989,178	965	1,444,745	40.6	...	59.4
" 22....1,564,505		316,602	2,070,305	39 6	8.0	52.4
" 29....1,708,028		365,009	2,607,380	37.3	7.7	55.0
Aug. 5....2,217,259		363,221	2,548,641	43.2	7.1	49.7
" 12....1,568,722		372,564	1,989,870	39.9	9.5	50.6
6 weeks..8,922,893		1.430.960	11.765.490	40.3	6.5	53.2

We see here that when the river was carrying nothing, the railroads were carrying very little, but since an average of 355,000 bushels a week has gone down the river, there has been an *increase* of 880,000 bushels a week in the average shipments by rail. So far are the railroads from failing to get a fair share of the grain shipments that they have 40 per cent. of them, which is more than ever before when navigation was open, except in unfrequent weeks during a railroad war. Last summer they were little more than this proportion, though rates were but 15 and 12½ cts per 100 lbs. where this year they are 25.

In the four weeks that there has been a considerable river movement of grain, the railroads have carried a little less than 40 per cent. of the whole; the river a little less than 8 per cent.—the railroads five times as much as the river. If by charging 20 cents instead of 25, the railroads could have secured all shipments that went by river (which they could not have done), they would have earned from their grain traffic $96 for every $100 that they have actually earned with the 25 cent rate. Certainly a reduction less than 5 cents per 100 lbs. would have very little effect on the river shipments. If they do not become larger than they have been so far, they will not have much effect on the profits of the roads. The largest amount yet shipped by river in a week if it had gone from St. Louis to New York by rail would have contributed about $65,000 to the gross earnings of some 12 or 15 railroads.

LONG HAULS OF ANTHRACITE COAL are among the developments of recent years which but a little while ago would have been thought impossible. Coal has long gone long distances by sea and river, but the carriage of a fuel for domestic purposes more than a thousand miles by rail on any considerable scale was not thought of. Yet now we have a traffic in the anthracite coal of Eastern Pennsylvania to points beyond the Missouri River so important that the Iowa Trunk Lines Association has issued a special tariff for it, giving rates from Detroit, Toledo, Chicago, Milwaukee and St. Louis, all apparently based on the rates from St. Louis, which vary from $5.50 a ton to Lincoln and Fremont to $8 to Central City and Hastings and $8.50 to Kearney. This last-named point is about 1,500 miles from the anthracite coal mines.

These rates show that anthracite cannot be a cheap fuel in Nebraska, as they must be added to the rate to St. Louis to make up the whole cost of carriage from the mine; but they also show, what is of vast importance to the anthracite coal roads, the extent of territory in which this coal is used as what may be called a luxurious fuel, as English coal is in New York. There is plenty of bituminous coal in Iowa within 156 to 200 miles of the places which pay $5.50 per ton for freight on anthracite from St. Louis, or $5.95 from Chicago, or $6.84 from Toledo—probably fully as much as is required to pay for the bituminous delivered. The fact that so much more is paid for anthracite shows how much it is preferred, and it need not be said that a moderate consumption even of anthracite, as for parlor and sitting-room fires, over a territory extending 1,500 miles west of the mines, much of which is growing fast in population and still faster in wealth, will make a great demand on production. As the great anthracite companies own mines as well as railroads, this extension of the consumption is of great importance to them. In it indeed is almost the only hope that all of them can earn interest on their vast capital.

THE JERSEY CITY FREIGHT-HANDLERS' UNION has formally resolved itself out of existence, so far as can be done by a meeting of the former Erie employés, in language which seems unnecessarily humiliating to the men, though perhaps it is quite true. The resolutions say that the men were induced to persist in the strike by false representations, that they now see their mistake, renounce the union, and are ready to return to work "if the railroad authorities be pleased to overlook our misbehavior and be kind enough to give us another chance to support ourselves and families, promising to be true and faithful employés, as we always were until in an evil hour we were carried away by the impulse of the moment into that strike which is now absolutely at an end."

This looks like a desperate effort to induce the company to dismiss their present men, who took the place of the strikers, and thus make room for the old ones. It is not likely that the company will take the old men back any the more readily on account of this humiliation. All the roads, apparently, have been ready to take the strikers back whenever they had room for them, and have commendably had regard to the character and intelligence of the men, and held no ill-will, as they might if employés of a higher grade had struck in the same manner. But they must feel under some obligation to the men who have served them faithfully during the past two months, under trying circumstances, and are hardly justified in dismissing them to make room for the strikers.

WEST-BOUND SHIPMENTS FROM THE SEABORD are very satisfactory. The restoration of rates might have been expected to reduce July shipments, and the freight-handlers' strike probably did reduce them somewhat in the first half of the month, at all events the shipments from New York were light then. Yet the aggregate shipments in July were nearly a fifth larger than last year, and larger than in any previous year—July nearly always being the month of lightest shipments.

It may be said that though west-bound rates in July were higher than for eleven months before, still they were lower than in any previous year since 1876, and that when we come to compare with the shipments made under the "war" rates of last year, we shall have a large decrease. But so far there is no indication of such a falling off. In the first half of August shipments were rather larger than last year, we understand, and last year shipments in August were much larger than they had ever been before in any month of any year. They were largely exceeded afterwards, however, in several months. The profits from this traffic now must be very much larger than last year; but the most encouraging feature connected with it is the evidence it gives of the general prosperity of the country, or of what we may call its consuming ability. After a whole year of bad crops one might naturally expect the purchases of goods in the interior to fall off, but instead they seem to be at least as large as ever. With the stimulus given by the fine wheat crop, we may reasonably expect a heavy fall trade which will be of great benefit to the trunk lines especially.

A MISSOURI RIVER BARGE LINE might be of special value to Kansas just now, when it has an enormous wheat crop to market. One was established some time ago, but it seems never to have carried anything on the Missouri, which most of the year is too shallow for navigation, and since the completion of railroads to Kansas City, etc., has been almost abandoned by steamboats, except those running to Fort Benton and other places on its upper course beyond the railroads. Recently, however, two barges were sent up from St. Louis to Kansas City to be loaded. They got up well enough, but when coming down ran aground near Glasgow, where the falling river has left them fast. If there was water enough, probably a good business could be done with barges from Kansas City, even if they went no further than St. Louis, as the course of the river between these places is directly on the route to the Eastern market. There are times (as after the "June rise") when there is usually water enough in the Missouri for the barges, but then there is usually little grain left to ship.

CHICAGO RAIL SHIPMENTS EASTWARD for the week ending Aug. 14 for three years have been:

	1880.	1881.	1882.
Tons	38,646	56,291	22,921

The shipments this year were thus 60 per cent. less than last year, and 41 per cent. less than in 1880. They were also 1,892 tons (8 per cent.) less than in the previous week of this year, but with this exception are the largest since June. The gross earnings from these shipments must have been about at the rate of $100 this year for every $147 in 1882 and every $202 in 1880.

This year the Chicago & Grand Trunk carried 3.2 per cent. of the total shipments, the Michigan Central 23.8, the Lake Shore 22.7, the Fort Wayne 31.8, the Pan-handle 9.1 and the Baltimore & Ohio 9.4 per cent. Thus the two Vanderbilt roads had 46.5 per cent. of the whole—an unusually large share—and the two Pennsylvania roads (which carry most of the Erie's freight) 40.9 per cent.

For the week ending Aug. 19 the shipments billed at Chicago (not including those from points west billed through Chicago) were 18,113 tons, against 50,262 tons in the corresponding week of last year and 18,611 in the previous week of this year. Last year the shipments of flour and grain amounted to 41,377 tons, and more than half the grain was taken from the lake vessels by the war rates; this year the flour and grain shipments were but 12,327 tons, and lake shipments were also very light.

NEW PUBLICATIONS.

Ready Reference for Locomotive Engineers and Firemen: by S. A. Alexander, York, Pa. Revised edition.

This is a little pocket-book of practical directions to locomotive runners and firemen, indicating what should be done in case of accident to their engines. The author, in the preface, says he has had over 33 years of experience in railroad shops, and has also been a locomotive runner. From his preface it may be inferred that it has been his duty to examine firemen and locomotive runners before promoting or employing them. His book apparently summarizes the special information which such candidates are expected to have, and contains many useful hints for young engineers and firemen. It is of the ultra practical type of book, and contains only specific directions of what to do in case the "pumps will not work, a flue is bursted, cross-head broken," etc., etc. The directions are clear, although it seems as if the book would have accomplished its purpose better if more of the reasons for doing things had been given.

Drawing Instruments. How to use them and how to take care of them. By an Old Draughtsman. New York: The Industrial Publication Company.

This is one of the small series of what are called "Work Manuals," published by the Industrial Publication Company. It has more the character of a catalogue of an instrument manufacturer than of an elementary treatise, and is an example of a very wretched class of books which are now produced in this country in such large numbers for working men. That they must have a very discouraging and depressing effect on men who are in the pursuit of knowledge under the difficulties which neglected early education always entails is quite obvious. The book begins with the usual description of dividers and compasses, which do not require description. There are engravings of a dotting pen, of proportional compasses, diagonal scales, parallel rulers, the sector, "the line of lines, the line of chords," and other things which not one draughtsman in fifty ever uses. The whole subject of drawing instruments and their use, instead of being simplified, as it might be in a book of this kind, is made more difficult than it need be by the addition of descriptions of useless instruments and methods.

Either the author did not adequately understand his subject, or he is not able to write clearly what he did know. There does not seem to be any sufficient reason for either writing or publishing such a book.

Report of the British Parliamentary Committee on Railway Rates and Fares.

ORDERED.—Friday, 10th February, 1882, that the Committee do consist of twenty-seven members. Committee nominated of—Mr. Barclay, Mr. Barnes, Mr. Bolton, Mr. Caine, Mr. Callan, Lord Randolph Churchill, Mr. Craig, Mr. Cross, Mr. Dillwyn, Sir Daniel Gooch, Mr. Gregory, Sir Baldwyn Leighton, Mr. Lowther, Mr. Monk, Mr. Samuel Morley, Mr. Mulholland, Mr. W. Newzam Nicholson, Mr. O'Sullivan, Mr. Richard Paget, Mr. Joseph Pease, Mr. Pell, Mr. Phipps, Mr. Samuelson, Mr. Sclater-Booth, Sir Henry Tyler, Sir Edward Watkin, Mr. Ashley.

REPORT.

Your Committee have met frequently during the last and present session of Parliament, and examined many witnesses in behalf of the general public, traders and others, and also on the part of railway and canal companies, whose

complaints and statements have, in part, been of much the same character as those which were inquired into, both by the Royal Commission on Railways which sat in 1865, and by the Joint Select Committee of 1872, and they have agreed to the following report:

The complaints against railway companies in respect to goods traffic submitted to your committee, may be arranged under the following heads:

1st. That rates in excess of the maximum authorized by the special acts are in many cases exacted. 2d. That on the same line of railway higher rates are charged on some kinds of goods as compared with others, although the cost to the company of performing the service is no greater in the one case than in the other. 3d. That in many cases lower rates are charged for goods imported or for export than for the same articles produced or for consumption in this country. 4th. That preferential rates are granted to one port or town as against another. 5th. That rates are now, in certain instances, much higher than they were many years ago, and that excessive, although not illegal rates prevent the development of traffic, to the prejudice of the public and of the railways themselves. 6th. That the difficulties in the way of obtaining redress by private individuals against railway companies for overcharge or illegal preference are almost insuperable. 7th. That in consequence of the multiplicity of private acts, imperfect classification, and defective rate books, it is almost impracticable to ascertain the particular class to which any article belongs, and the rates which the railway company will charge or is authorized to charge for its conveyance.

I. CHARGES ALLEGED TO BE IN EXCESS OF THE MAXIMUM.

It has been submitted in evidence by numerous witnesses that in many instances railway companies make charges for the carriage of goods much in excess of the maximum rates authorized by their special Acts, particularly for articles of agricultural consumption or production, such as manures, hops, milk, vegetables, etc. It is admitted that many of the charges so complained of exceed the maximum authorized, if the mileage rate alone is taken into account; but it is contended on behalf of the railway companies that these complaints apply only to a small proportion of their traffic, the great bulk of which is carried at rates which are below their legal maximum powers, and that, in addition to the mileage rate, they are entitled to make a charge for what is called "terminals," that is, accommodation and conveniences afforded, and services performed in respect to the goods at the receiving and delivering stations.

The charges which railway companies are entitled to make are of two kinds, those pertaining to them as owners of a railway, and those attaching to them as carriers.

The charges of railway companies in their character of carriers consists mainly of remuneration for the mere conveyance of goods, and this remuneration includes tolls for the use of the railway, for the use of carriages and wagons, and for the supply of locomotive power. The amount of these tolls is fixed by statute, and a maximum rate comprising the three several tolls is, with a few exceptions, also fixed by statute, and is usually somewhat less in amount than the aggregate of the three separate tolls, probably because it was supposed that if the company provided both carriages and locomotive power they might make an easirer profit than if either of these were supplied by the trader. The maximum charge, therefore, *i. e.*, the station to station rate, is a sum paid to the railway company to cover all services "incidental to conveyance," and a view of the trading community is, that the use of a station and sidings, loading and unloading (unless expressly expected) and the like terminal services, are "incidental to conveyance." The companies, on the other hand, argue that conveyance only commences when the train begins to move, and that these services are not "incidental to conveyance," but are additional services, for which extra tolls may be demanded.

When the earlier railway acts were passed it was supposed that the companies would be, like the canal companies, mere owners of the route, and their maximum tolls were fixed accordingly. But they subsequently became carriers, and as carriers provided stations, sidings, warehouses, cranes, and other fixed plant, which had in many cases previously been provided or leased by private firms. The evidence given before your committee proves conclusively that large sums have been expended by railway companies in providing from time to time for this accommodation. In the second place they provided labor and appliances for loading, unloading, covering, collecting, and delivering traffic, which services varied in respect of different traffic. Some confusion has arisen from the use of the word "terminals" for both these classes of service, and it would be well if distinct terms could be applied to them, such as "station terminals" and "handling terminals." For these services they claim to be entitled by different acts of Parliament to receive "reasonable remuneration." The term of these acts varied, and the meaning and extent of some of them is not now clear, but there is no evidence before your committee to show that the companies, except in the case of the Lancaster and Carlisle act of 1844, and of the North Staffordshire act, 1880, have in any of their acts been specifically authorized to make a charge for the "use of stations." In the case of traffic carried for long distances this doubt rarely affects the legal right of the companies to the charge which they make, since the whole of the charge, including terminals, is almost invariably below their maximum mileage rate. But in the case of short distances and of goods in the higher classes, the aggregate charge they make would in many cases be beyond their statutory maximum if they are not entitled to add station terminals. It is, therefore, a matter open to legal question whether in these cases the companies are exceeding their legal powers.

On the point of the "determination of terminals," reference may be made to the following extract from the report of the Joint Committee of 1872:

"But where it is a separate charge it seems obvious that if the services thus charged for are as necessary and as general as the actual carriage of the goods, there is just as much reason for imposing a legal maximum in one case as in the other. And such a maximum would no doubt have been imposed in the earlier acts, if it had been foreseen if each company would do all the carrying on its own line. Whether any such maximum should be now imposed is a different question. Independently of the question of vested interest in the companies, it is to be observed that legal maximum rates afford little real protection to the public, since they are always fixed so high that it is, or becomes sooner or later, the interest of the companies to carry at lower rates. The same thing is true of terminal charges. The circumstances are so various and so constantly changing that any legal maxima which might now be fixed would probably be above the changes now actually made; certainly far above those which will hereafter be made. Indeed, attempts made in 1861 and 1866 to fix a maximum for terminals broke down because the only maximum that could be agreed upon was so much beyond the charge then actually made to coal-owners that the coal-owners feared it would lead to a rise in that change."

Clause 15 was inserted in the act of 1873, giving the Railway Commissioners power, in case of dispute, to determine what is a reasonable sum to be charged for terminals. But this clause only operates where there has been a dispute; it merely governs the individual case, and then only by an expensive legal proceeding. It has not removed the complaints that terminals are excessive, and that by mixing up undetermined terminals with mileage rates, old means of comparing the actual charges with the statutory maximum are taken away from the public.

It has been stated, as regards terminal charges, that the services in respect of which they are paid are of "the most various character;" and that it would therefore be impossible without great injustice, both to the public and the companies, to frame any rules or scale of charges generally appliable to them in respect to each class of goods. As regards the public, there may be some truth in this; but the public would probably gain more by certainty than they would lose by inequality. And as regards the companies, there appears to be a clear answer to the objection in the fact that the companies do, in the Clearing House, apply such a scale as between one another and find it to operate fairly enough, since underpayment in one case is counterbalanced by over-payment in another. It is obvious that some of the present difficulties arise from want of knowledge. Some changes which appear *prima facie* to be unequal and unjust turn out on explanation to be fair and reasonable. Private persons have often great difficulty in approaching a railway company, and fail to seek for or procure information which ought to be at their disposal. In the present relation of railway companies to the public, it is eminently to the interest of both parties, as it is the right of the public, that the dealings of the companies should not, like the dealings of private traders, remain a matter of private arrangement, to be disclosed or not, as they think fit, but that they and the reasons for them should be open to all the world.

Your Committee, therefore, are of opinion that the right of railway companies to charge for "station terminals" should be recognized by Parliament, so as to provide by a general act that the sums which they claim a right to demand for terminals of any kind at each station shall be clearly entered in the rate book, or otherwise publicly notified at such station, so that it may be open to anybody at any time to challenge before the Railway Commissioners, under the provisions of Section 15 of the Railways and Canals Traffic Act of 1873, the reasonableness of such sums, the Commissioners having power, in giving their decision, to take into account the maximum rates of the company.

II.—EXCESSIVE RATES CHARGED FOR SOME KINDS OF GOODS AS COMPARED WITH OTHERS, AND PREFERENTIAL RATES FOR GOODS IMPORTED OR EXPORTED, OR CONVEYED TO ONE PORT OR TOWN AS AGAINST OTHERS.

Complaints have been submitted to us that on the same railway higher rates are charged for one kind of goods than for another, although the cost of performing the service is no greater in the one case than the other, and that the same railway carries goods to a common centre at much lower mileage rates from one port than from another. Numerous complaints have also been made that foreign produce is carried at much lower rates than home produce under similar circumstances and conditions, and that goods for export are sometimes carried to the port of shipment at lower rates than are charged for the same goods conveyed to the same port, but not for export. Foreign hops, for example, are conveyed from Boulogne *via* Folkstone to London at 17s. 6d. per ton, while the charge for hops from Ashford on the same line of railway to London is 35s. per ton. The beef of American cattle slaughtered at the wharf in Glasgow is carried to London for 45s. per ton, while the rate for the meat of home cattle conveyed under similar conditions is 77s. per ton. Bale goods from Manchester for export are conveyed to London at the rate of 25s. per ton, but 40s. is charged for packed goods to warehouses in London, and so in many other cases. The rate for cotton to Manchester from Barrow-in-Furness, a distance of 87 miles, is 9s. per ton, and the same rate is charged from Fleetwood, 50 miles, and also from Liverpool, a distance of only 31 miles.

The railway companies admit these anomalies, and defend them, on the ground that if the goods were not carried at the lower rates, the traffic would go by some other route, or not be forwarded at all, and it is contended that the public do not suffer by the preferential rates.

On behalf of the public, it is alleged that the policy of which complaint is made diverts trade from its natural channel; and that to enable railway companies to give low rates in some cases, unduly high rates must be charged in others, and that the public interest suffers in consequence. The question at issue is one of great importance, and will be considered in dealing with the subject of rates generally.

III.—INCREASE OF RATES IN RECENT YEARS AS COMPARED WITH WHAT OBTAINED FORMERLY, AND THAT UNNECESSARILY HIGH RATES PREVENT THE DEVELOPMENT OF TRAFFIC.

Complaints have been submitted that the rates now in force are in many cases higher than previous to 1870. In consequence of the great advance in the prices of materials of all kinds, and of wages, which culminated in 1873, railway companies made a considerable increase on some of their rates, and it is complained that although prices of materials are now as low as previous to 1870, railway companies have not returned to the rates then in force.

Witnesses from Forfarshire and from Cornwall have informed us that the rates now charged for fish and vegetables absorb so large a portion of the price realized as to leave a comparatively small margin for production, and that when the supply is plentiful the whole of the proceeds is sometimes absorbed by the carriage and other charges. They contend that with lower rates, the traffic in fish from these and adjoining counties, and in vegetables from Cornwall, would develop enormously, and prove more advantageous to the railway companies than the present limited traffic at high rates, while not only those engaged in fishing and farming would greatly benefit, but also the consumers in the large centres of population.

The railway companies allege that the rates now charged are fair and reasonable, having regard to the cost and character of the services performed, and all other circumstances; also that the reduced rates of carriage proposed would not appreciably affect the selling price of fish.

IV.—CLASSIFICATION AND RATES.

Every special act of recent date authorizing the construction of a railway comprises either directly or indirectly certain clauses which embody the powers of the company to charge for the use of the railway, both in respect of passengers and goods.

One set of clauses specifies separate charges for the use of the line, for wagons or carriages, and for locomotive power, and another set of clauses the maximum rates the company can charge for the conveyance of passengers or of goods; including everything incidental to the conveyance, except where otherwise provided.

The former set of clauses—the tolls clauses—governs the right of companies in same cases in which running powers are exercised, but do not affect the rates charged for carriage.

Goods are now conveyed by railway companies almost exclusively as carriers, and the second set of clauses fixes the maximum rate per mile the company is authorized to charge for the conveyance of passengers and goods.

Goods are usually divided into four or five different classes, for which different mileage rates are allowed, and the rates vary from 1d. to 5d. per ton per mile, except for coals, which under some acts are carried under special conditions at less than 1d. per mile.

The classification of goods is very imperfect, and no uniformity in classification or rating is observed either as between the acts of different companies, or among the various special acts of the same company. Almost every railway company levies rates under several acts applicable to different portions of its system, and in some cases reference must be had to more than fifty acts to determine the various rates the company is authorized to charge.

Among themselves railway companies have a classification embracing almost every article of trade or commerce. This classification is in use by railway companies in respect to through rates, and many companies have adopted it for their local traffic, but others have a classification of their own.

Your Committee have failed to discover any general principle on which maximum rates have been fixed, or on which the comparatively few articles enumerated in the special acts have been classified. It is usually provided that all articles not enumerated may be charged at the highest rate authorized. "Manufactured" articles are usually enumerated, but not always in the highest class; when this is the case it is difficult to determine the particular class to which such article belongs.

It is thus extremely difficult for a trader to discover, on an extensive system, the maximum legal rate for the conveyance of any particular kind of goods. If he is successful in finding out the maximum rate clauses applicable to the parts of the general system he is to use, there remains the difficulty of determining the class to which the article belongs, and of dealing with the indefinite charge which the companies claim to make for terminal services.

Neither are the rate books which the companies provide under the Regulation of Railways Act, 1873, of much assistance to the public in ascertaining the rates which the company charges. As a rule, different kinds of goods are not specified, but rates are quoted by classes, and to ascertain the class to which any particular kind of goods belong, reference must be had to a separate book of classification. In many cases the numerous exceptions and special rates increase the difficulty of the investigation.

It is doubtful whether the rate books as kept at the stations, even when supplemented by production of the classification book, are a compliance with the provisions of act of 1873, and it is in evidence that railway officials occasionally refuse to exhibit the rate and classification books. Railway managers assert that they have given general orders to all their goods agents to exhibit the rate book, but that its production is very seldom required by traders. And this is not surprising, for in many cases the exceptions are so numerous and the determination of the rate otherwise so uncertain, that an ordinary trader will prefer applying to the railway official to quote the rate, instead of referring to the rate book himself.

The companies maintain that so long as competition between different systems and districts exists, rates for goods cannot be fixed upon any simple or uniform basis; and that any practical inconvenience arising from complication or uncertainty is avoided by the custom which prevails among traders of applying by letter to the railway companies for any information required as to rates. A clause requiring each company under penalties to give detailed information as to all rates which it charges has been inserted in every railway bill promoted in Parliament during the present session.

FIXING RATES.

The question of the rate which a railway company has the power to fix for any particular kind of goods, under their special acts, and with due reference to the charge they make for other goods conveyed under similar circumstances, is one of considerable difficulty. Railway managers contend that they have the right to charge any sum not in excess of the maximum authorized by the special act, and that they ought in no respect to be controlled in charging much more for one kind of goods than for another, although the cost of performing the service is no greater in the one case than in the other. It is indeed contended, as in the case of beef carried from Glasgow to London, that railway companies may properly carry the same kind of goods under similar conditions, from different consignors, at very different rates.

According to the evidence of the railway managers who appeared before us, no general principle or system for fixing rates has been adopted on any railway in this country. The charge for conveyance they informed us was such a sum, within the power of the company, as they thought the traffic would bear, having regard to competition, both of other means of conveyance and of other districts or markets; or, in other words, as much as could be got, and without reference to the cost to the company of performing the service. Indeed, the managers examined informed us that they found it impracticable to determine with accuracy the cost of conveying any particular kind of goods between two stations.

The railway managers assert that they carry no goods at a loss, and that even the lowest rates yield a margin of profit over working expenses; but in making this statement they do not include any charge for interest on capital.

No witness has recommended the adoption of equal mileage rates for the conveyance of goods, but many have complained of the anomalous charges by railway companies, and urged the general advantage of fixing rates on some intelligible principle, instead of arbitrarily at what railway managers think the traffic will bear.

It appears in evidence that in the case of one, if not of more, railway companies, no maximum rate has been fixed over a large portion of their system. The Committee are of opinion that it is essential to the protection of the public that a maximum rate should be fixed in all cases.

In some cases particular kinds of goods, or goods over one portion of a railway system, are carried at very low rates, as compared with those charged for other goods, or the same goods over another portion of the same system.

There is no question as to the existence of these "preferential" or "exceptional" special rates; the latter epithet being the term used by representatives of the railways. The evidence given under this head comes almost entirely either from persons engaged in production who are being charged proportionately higher rates than producers resident in other parts of the country, or from towns or places through which traffic passes, who, as engaged in the business of carrying or distribution, complain that it is diverted from them by the lower rates charged on other routes. But for the competition introduced by the low rates given by railway companies, trades would be much more local, and the trader who was nearest the market would probably make a larger profit. But, on the other hand, this competition cannot but be advantageous to the public; that Greenock sugar refiners should be in the same markets as the sugar refiners of London, while it may be a grievance to London refiners, must be an advantage to Greenock refiners, and cannot be a disadvantage to buyers of sugar. It may be worth while to

follow this out as a typical case: 39 towns in England to which sugar is sent are at an average distance of 292 miles from Greenock, and the same towns are at an average distance from London of only 150 miles. The rates for these distances from London and Greenock respectively are about the same, representing, in the case of the Greenock rate, 1.09d., but in the case of the London rate, 2.13d. per ton per mile. In other words, sugar from Greenock is, for the same sum, carried double the distance as sugar from London. This enables Greenock to compete at these 39 towns, and this is what the refiners of London object to. The demand from London, therefore, is, that either the rates for the longer distance should be raised, or those for the shorter distance reduced. The effect of compliance with this demand would be to close some of these markets against Greenock sugar, to deprive the northern lines of a considerable portion of their trade, handing it over to the southern lines, and to give a practical monopoly to the London sugar refiners, who would be real gainers by the transaction. It does not appear to your Committee that such a result would be either just or reasonable.

Although "equal mileage" rates, that is to say, rates proportioned exactly to the number of miles run, have not been advocated on this occasion as before former committees: still, ideas have been put forward so closely resembling such as would naturally support the mileage system, that it may be worth while to recall the words of the Committee of 1872:

"The form which the proposal for a fixed standard of charges as usually taken is 'equal mileage,' *i. e.*, a charge for each class of goods and passengers in proportion to the distance for which they are carried. This point was much urged before the Royal Commission, and is so effectually disposed of by their Report that it seems scarcely necessary to dwell upon it further. But it reappears in the evidence of some of the witnesses before this Committee, and it may therefore be desirable to state shortly why it is impracticable:

"(*a*). It would prevent railway companies from lowering their fares and rates, so as to compete with traffic by sea, by canal, or by a shorter or otherwise cheaper railway, and would thus deprive the public of the benefit of competition, and the company of a legitimate source of profit.

"(*b*). It would prevent railway companies from making perfectly fair arrangements for carrying at a lower rate than usual goods brought in larger and constant quantities, or for carrying for long distances at a lower rate than for short distances.

"(*c*). It would compel a company to carry for the same rate over a line which has been very expensive in construction, or which, from gradients or otherwise, is very expensive in working, at the same rate at which it carries over less expensive lines.

"In short, to impose equal mileage on the companies would be to deprive the public of the benefit of much of the competition which now exists, or has existed, to raise the charges on the public in many cases where the companies now find it to their interest to lower them, and to perpetuate monopolies in carriage, trade and manufacture in favor of those rates and places which are nearest or least expensive, where the varying charges of the companies now create competition. And it will be found that the supporters of equal mileage, when pressed, often really mean, not that the rates they pay themselves are too high, but that the rates that others pay are too low.

"Pressed by these difficulties, the proposers of equal mileage have admitted that there must be numerous exceptions, *e. g.*, where there is sea competition (*i. e.*, at about three-fifths of the railway stations of the United Kingdom), where low rates for long distances will bring a profit, or where the article carried at low rates is a necessary, such as coal. It is scarcely necessary to observe that such exceptions as these, whilst inadequate to meet all the various cases, destroy the value of 'equal mileage' as a principle, or the possibility of applying it as a general rule."

But some kind of equality of charge is pressed in other forms and on other grounds. Farmers complain that imported agricultural produce is given a bounty over home produce by being carried at a lower rate; that foreign corn and meat are carried from Liverpool to London for less than English corn and meat; that American cattle are conveyed from Glasgow to London for less than Scotch cattle; that cattle landed at Newcastle are carried inland for less than cattle reared in Northumberland and Durham; that foreign fruit and hops are carried from Boulogne or Flushing to London for less than fruit and hops from Ashford or Sittingbourne. Wire manufacturers complain that Belgian wire and other goods are brought from Belgium to Birmingham for less than similar goods are charged from Birmingham to London. Makers of chemicals complain that the coal which they use is made to pay higher rates than the coal sent past their works to Liverpool for exportation to their foreign rivals; and Limerick complains that foreign bacon and provisions are carried from Liverpool to Limerick at much less rates than is charged for Limerick bacon over the same route to the same port. Bradford complains that the export trade from both Manchester and Bradford enjoys rates which are preferential as compared with those for the home consumption trade. In short, the complaint is frequently heard that railway companies prejudice home producers by low import and export rates.

Your Committee think that many of these differential charges afford substantial grounds for complaint, but they do not consider it necessary to express an opinion as to how far these differential charges constitute undue preferences, because that is a point which the proper tribunal has full power to determine, and each case must be considered on its merits.

At the same time it must be admitted that when a farmer sees American wheat carried at a lower rate than his own, or when a manufacturer near a market has his profits in that market reduced by a competitor at a distance, who is brought into the market by the lower rates given to him, it is not surprising that there should be complaints, and that attempts should be made and from time to time repeated to fix some standard by which rates shall be determined. One form in which this proposal has been made is, that the rate ought to bear some fixed proportion to the cost of the service performed; or in other words, that the companies ought not to be allowed to make a higher profit on one part of their traffic than on another.

It would be an answer to this suggestion to say that any such standard of charge would be difficult, if not impossible, in practice. To ascertain what is the relative cost and profit of each description of traffic would be beyond the functions of any government department or court of law, and the companies allege that it would be beyond even their power. It would entail the finding and consideration of such items as the original cost of the particular line; the cost of carriage of the particular goods on that part of the line as compared with the cost of carriage of other goods on the same line, and of the same and other goods on other portions of the line; and the proportion of all these to the whole charges and expenses of the company. But assuming it to be practicable, it is open to question whether the public would gain by this or by any other fixed standard of rates.

Any fixed standard of rates would materially interfere with competition. Supposing such a standard fixed, the result would be that the traffic which is now carried at a low rate in competition with a sea route would be driven from the railway to the competing sea route, whilst the railway, if it is to make as much aggregate profit as before, must charge a higher rate than it now charges on the traffic which remains to it.

If Parliament were to say that the Northeastern and Great Northern companies shall make no greater profit on cattle or on fish brought from Newcastle, or from Hull, or Grimsby, to London, than they do on cattle or fish brought from Scotland or from abroad over the same portions of their respective lines, the effect would be either to send the Scotch and foreign goods by sea to London, or to prevent them going to London. In either case the traffic of cattle and fish to the London markets would be restricted; the price would be raised; and though the price would be raised the English producer would not get the benefit of it, for the railway companies would be able to raise their rates on English cattle and fish, in order to recoup themselves for the loss of their Scotch and foreign traffic; or, again, if the Great Eastern were not allowed to have a cheap long distance rate to London, the trade of Norfolk and Suffolk in agricultural produce would almost disappear as regards cattle.

Therefore, when it is said that low rates always increase traffic, and that companies will adopt universally the lowest rates they are now charging to anyone, the answer is that they are likely to understand their interest better than the Legislature; that if you force them into equal rates they will no longer have any inducement, or indeed be able, to make the experiment of low rates; whereas under the present system competition and self-interest obliges them to make these experiments.

Again, taking the case of the inland towns which complain of the lower mileage rates granted between towns which have better access to the sea, it is obvious that the railway companies are really only preserving to the latter the advantages which nature has given them, and that to prevent them giving the lower rates would really benefit no one except the owners of steamers. Places less accessible by natural avenues, like navigable waters or the sea, may be less fortunate, but it is scarcely just or profitable—it must be unprofitable to some interest—to undertake by arbitrary laws to supply the advantages denied by their situation.

Or, taking the preference alleged to be given by the railway companies to Barrow and Fleetwood over Liverpool, or to Hartlepool and the Tyne over Hull, it seems most unlikely that the companies would have incurred the expense of the docks of their own at Holyhead or at Hartlepool, unless they were satisfied that the trade was such as to pay them for these docks, and for the longer railway journey, without destroying what the companies already possessed, viz., the traffic from Liverpool and Hull. If the rate to Barrow and Fleetwood were raised, the traffic to those places would suffer, and the railway companies, in order to recoup themselves for the lost profit, might charge higher rates to Liverpool; so that Barrow and Fleetwood would suffer, while Liverpool might not gain. The probability is, that the trade of the country gains, as a whole, by bringing these routes into operation.

It may, therefore, be assumed that some of the inequalities of charges complained of are to the advantage, rather than to the disadvantage, of the public. Where there is an "undue preference" the law now gives a remedy. A preference, to be illegal, and to furnish a reasonable cause of complaint, must be unjust. It is not unjust so long as it is the natural result of fair competition, and so long as equal rates are given for like services under like circumstances, and for like quantities of merchandise. It has thus been repeatedly decided in the case of passenger fares that there is no ground of complaint merely because the fares over one part of a railway system are higher than those over other parts. It has also been decided in the case of goods that circumstances which make the cost of carriage differ, such as steep gradients, or difference in quantities to be carried, will justify difference in charge. And this is but right. What is reasonable for a road of easy gradient and a large volume of business would be unreasonably low for a road of heavy gradients and a smaller traffic. The discrimination or preference as regards quantities is recognized by the natural laws of trade, and is common to all branches of business. A man who buys goods wholesale expects and will receive more favorable terms than the one who buyes at retail. The seller by one wholesale transaction is saved the trouble and expenses of many smaller ones, as well as the cost of storage. This is so natural, and founded on reason, that no one thinks of calling it preference. The same thing must be recognized in the business of transportation; there must be all the difference in cost whether an unbroken full train is hauled to the terminus of a line, or whether the trucks of which it is composed are distributed at numerous different points, with the delay and expense of stoppages and "shuntings."

The witnesses from Ireland, besides complaining of inequalities which are similar to those already described, and which call for the same remarks, made several special complaints. They allege that the rates charged for local traffic are generally higher than on the English railways, and that the classification is less liberal, especially as to agricultural produce and implements; that these local rates are high out of all proportion as compared with those on through traffic between stations in England and stations in Ireland, to the great injury of the Dublin wholesale houses; that by the action of the Irish and English Traffic Conference, including lines of steamers, a complete monopoly has been established, the rates from Liverpool to Dublin by sea being kept up to those *via* Holyhead. In fact, that by means of their control of the through traffic the great railway companies are enabled to prevent independent steamers from carrying at the rates which competition would naturally bring. They also pointed out that the management of the Irish railways is needlessly expensive, in consequence of their being owned by a number of companies, each having its own staff—there being in Ireland 270 directors, 37 secretaries, 20 managers, and a corresponding staff of subordinate officers for the administration of railways having a capital of 36 million pounds; whereas the Great Western Railway of England, having a capital of nearly twice that amount, is managed by a single board of 18 directors, a Secretary and a General Manager. As to this last point, your committee are agreed that the further amalgamation of the Irish railways would tend to economy and efficiency of working, and that such amalgamation should not only be urged on the companies concerned, and meet with every facility which Parliament can offer for effecting the requisite arrangements, but also, if necessary, be made the subject of direct Parliamentary action. Your Committee are also of opinion that there should be one classification for the United Kingdom.

As to the conference of companies for the purpose of mutual agreement, such as the English and Irish Traffic Conference, your Committee would point out, that such associations are inevitable, and find place in almost every branch of trade.

Your Committee cannot recommend any new legislative interference for the purpose of enforcing upon railway companies equality of charge.

V. DIFFICULTIES IN THE WAY OF OBTAINING REDRESS AGAINST RAILWAY COMPANIES.

Traders complain, and the complaint has been supported by many witnesses, that it is not for the interest or pecuniary advantage of almost any trader to take a railway company before the Commission.

1st. Because the expense of obtaining redress is so great, that the trader, even when completely successful, will almost invariably sustain pecuniary loss:

2d. Because experience has shown that railway companies are prepared to litigate to an extent which few traders would dare to contemplate; and,

3d. Because railway companies have so many opportunities of putting traders to inconvenience and loss by withholding ordinary trade facilities and otherwise, that traders are afraid of the indirect consequences of taking a railway company into court.

The evidence submitted to us shows that there is some ground for these apprehensions on the part of traders, and the consideration of their relative positions clearly shows that it is to the pecuniary advantage of a trader to submit to overcharges, or to suffer from undue preference to others instead of taking a railway company before the Commissioners.

Perhaps no more instructive or illustrative case could be adduced than that stated by the Chairman of the London, Chatham & Dover Railway Company.

Last year that company issued a circular stipulating for a special service tariff, and tenders for the carriage of hops by the company.

According to this tariff the rate for hops from Sittingbourne, for example, was 36s. 8d. per ton, from which 5s. might properly be deducted for delivery in London, leaving 31s. 8d. as the charge for conveyance on the railway. On behalf of the hop-growers, it is contended that the maximum legal charge by the company for conveyance from station to station is 18s. 9d.; and if the contention is well-founded, the railway company surcharged 12s. 11d. per ton.

The quantity of hops annually carried by the London, Chatham & Dover Railway Company is about 4,000 tons. The alleged surcharge on this quantity amounts to an important sum, and this the railway company would have at stake in any action, but the surcharge to the individual hop-grower would hardly tempt any prudent man to litigation.

VI.—CANALS.

Serious complaints have been made by traders and canal companies against railway companies in respect to the working of canals owned by them, or of which they control the navigation.

Cases have been adduced where railway companies, having acquired possession or control of a canal, have ceased to work it, or allow it to fall into disrepair, or charged excessive tolls, especially in the case of through rates, and that in consequence traffic is diverted to the railways, where higher rates are exacted, to the injury of traders and the public generally.

Your Committee are of opinion that these complaints are not unfounded.

A railway company owning or controlling a canal may think it profitable to lose the revenue of the canal in the expectation of deriving a greater revenue from the railway, to which it is a competitor, and where the canal forms part of a through competing route it is obviously its interest, as a general rule, to discourage through traffic.

Transportation can frequently be effected more cheaply by canal navigation than by railway, particularly where the traffic consists of heavy goods of little value, or where speed is not of importance. Your Committee are therefore of opinion that it is impolitic that railway companies should have the control, either directly or indirectly, of canal navigation; and that where canals are already under the control of railway companies, Parliament should endeavor to insure their use to the fullest possible extent.

VII.—PASSENGER TRAFFIC.

The complaints submitted to your Committee in respect to passenger traffic are rather local than general, and not of an important character.

The complaints are to the effect that the number of trains available to third-class passengers is insufficient, that the train service might be better arranged for the public accommodation, and that in some cases higher or the same fares are charged for a shorter than a longer distance over the same route, and that in the South of England the fares generally are much higher than those adopted by other railway companies.

Your Committee are of opinion that, with few exceptions, the competition for passenger traffic is sufficient to insure satisfactory accommodation to the public, and that such anomalies as have been pointed out will not be continued in the face of the policy of uniformity and simplicity of fares which has been adopted on some of our larger railways.

Such inequalities as have been pointed out in evidence before your Committee seem to involve "undue preference," and might well be adjudicated upon by the Railway Commissioners. If, however, there is any doubt as to the complete jurisdiction of the Railway Commission in regard to passenger traffic, your Committee are of opinion that the Railway Commission should have as full and complete powers in respect to passenger as to goods traffic.

VIII. THE RAILWAY COMMISSION.

The next question is the nature and constitution of the tribunal from which aggrieved parties are to seek redress. Your committee are, first of all, of opinion, that the tribunal should be made permanent as well as special. The Railway Commission has, to a great extent, been hindered in its work by the temporary character with which it has hitherto been invested. At the same time your Committee are convinced that the establishment of the Commission has been of great public advantage, not merely in causing justice to be speedily done in those cases which have been brought before it, but also in preventing differences from arising as between railway companies and the public. Its utility is not to be measured solely by the instances in which it has been called upon to "hear and determine," but also by the deterrent and controlling influence of its existence.

Representatives of the railway companies, backed up by legal gentlemen of eminence, have urged upon your Committee that it is not desirable to continue the special tribunal in its present form, but that the Court should be reconstituted by the appointment of a single judge, to be selected from the bench or the bar, aided by assessors wherever other than legal knowledge is required. From the traders and the general public, on the other hand, no demand has come for such a change: on the contrary, the general tenor of their evidence exhibits satisfaction with the services rendered to the public by the existing Railway Commission.

Your Committee cannot see any reason for reversing the legislation of 1873 and returning to the purely legal tribunal which, as the Court of Common Pleas, was tried from 1854 to 1873, and then abandoned. The act of 1873 provides that there shall be three Commissioners, "of whom one shall be of experience in the law, and one of experience in railway business;" and although it has been urged that the practical knowledge of an expert soon becomes obsolete

when he has retired from any active share in the matters to which his knowledge relates, your Committee consider that it is of importance that the judgment of the special tribunal should be aided by the presence of the element which was provided by the above recited provision of the act of 1873.

Your Committee, however, think that a case has been made out for granting to litigants before the Railway Commission a right of appeal. Important matters, many of them "*primæ impressionis*," which fix the law and practice all over the United Kingdom, come up from time to time for decision; and it appears to your Committee that one recognized appeal to a higher court would not only be just but much more satisfactory than the present circuitous and uncertain motions for a prohibition, to which defendents are now constantly having recourse, and which, as well as writes of *certiorari*, in future should be forbidden in the event of a general right of appeal being granted. Beyond a court of appeal there should be no access given to the House of Lords, except on points of law and with the consent of the court of appeal, and in such a case the court of appeal should be empowered in their discretion to stipulate that the railway company (if appellant) shall in any event pay the costs for settling an important question of principle applicable to many other cases.

The Appellate Court should be for England and Ireland the Court of Appeal, and for Scotland, either division of the Inner House of the Court of Session.

The Railway Commissioners should be required to deliver separate judgment in cases where they are not unanimous.

Your Committee consider further that the jurisdiction of the Railway Commissioners should be extended, and that they should have power to enforce in the interests of the public the provisions of general and special acts affecting railway companies (exclusive of questions touching the safety of passengers), to enjoin and enforce obedience, and to give redress in any cases of illegal charges, including power to order payment of damages for any injury already sustained.

That they should be empowered to make orders within the statuory obligations of the companies, the fulfilment of which involves the co-operation of two or more railway companies.

That on the joint application of the parties they should have power to act as referees on all rating appeals to which canal and railway companies are parties.

That all the powers formerly exercised by the Board of Trade as to the approval and revision of traffic agreements be explicitly transferred to them.

Power should also be given to the superior courts to transfer to the Railway Commission, if they think fit, any legal proceeding before them to which a railway or canal company is a party, and which, in the opinion of the court, raises questions under the railway and canal traffic acts which can be more satisfactorily determined by the Railway Commissioners.

Your Committee are of the opinion that the existing law as to through rates is not sufficient in all cases to secure through communication, and they think that the Railway Commissioners should have power, on the application of a private trader, to order two or more railway companies to make a through rate over their respective systems, by a continous line of communication, and by the shortest route available. Provided that such order shall not impose on any railway company a lower rate than the lowest rate on such railway for similar articles under similar circumstances.

Your Committee are of further opinion that the multiplicity of special acts dealing with rates or charges on the same railway is a great evil, and that railway companies should be required to consolidate their special acts, in so far as they affect rates or charges imposed upon the traders.

Your Committee are further of opinion that the mode of enforcing the orders of the Railway Commissioners is at present unsatisfactory, and that they should have conferred upon them all the powers and incidents of a court of record.

Your Committee are of opinion that in all cases of bills for authorising new lines of railway, or extending the powers of existing companies, the attention of the committees on such bills should be specially directed by some public authority to the rates and fares either authorised by such bills, or in the case of existing companies, by previous acts, and that such committees should have power to alter, modify, and regulate such rates and fares in the interest of the public, and with due regard to the interests of existing companies. That for this purpose a *locus standi* before parliamentary committees should be given to persons affected by such rates and fares, and complaining of the same.

Your Committee, in conclusion, report that on the whole of the evidence they acquit the railway companies of any grave dereliction of their duty to the public. It is remarkable that no witnesses have appeared to complain of "preferences" given to individuals by railway companies as acts of private favor or partiality such as were more or less frequent during the years immediately preceding the act of 1854. Your Committee find that the rates for merchandise on the railways of the United Kingdom are, in the main, considerably below the maxima authorised by Parliament, although these charges appear to be higher for the longer distances than on many continental lines. But, on the other hand, the service on our home railways is performed much more rapidly than on the continent. Heavy goods, for instance, are constantly being delivered in London the morning after the evening on which they are consigned to the company's servants at Manchester; whereas two or three days would be allowed and expended for similar services on similar distances in France. The history of the rise of the two systems of railways may explain much of this difference. The earlier lines in England encountered strong opposition, and they have all been constructed at a great cost by unaided private enterprise. Foreign railways have, in many instances, been actually constructed or greatly assisted by the state. Some, such as the government railways in Belgium, are worked less with a view to profit than as national institutions for the benefit of the whole community.

RECOMMENDATIONS.

The recommendations of your Committee may be summarized as follows:

1. That chambers of commerce and of agriculture, as well as other similar associations of traders or agriculturists, have a *locus standi* before the Railway Commission on a certificate of the Board of Trade that they are a *bonâ fide* association.

2. That one uniform classification of goods be adopted over the whole railway system.

3. "Terminal" charges to be recognized, but subject to publication by companies, and, in case of challenge, to sanction by Railway Commission.

4. That on application by a railway undertaking for Parliamentary powers, attention should be directed by some public authority to the proposed, and, in the case of an existing company, to the existing rates or fares, with a view to their consideration by the committee; and that persons affected by such rates or fares should have a *locus standi* before such committee.

5. That Parliament do not sanction any further control, direct or indirect, of canal navigation by a railway company.

6. That the Railway Commission be made permanent, and a court of record.

7. That the powers and jurisdiction of the Railway Commission be extended to cover:

(a.) All questions arising under the special acts or the public statutes for regulating railway or canal traffic affecting passengers or goods.

(b.) The making of orders which may necessitate the co-operation of two or more railway or canal companies within the statutory obligations of the companies.

(c.) Power to order through rates on the application of traders, but no such order to impose on a railway company a rate lower than the lowest rate of such railway company for similar articles under similar circumstances.

(d.) The revision of traffic agreements, both of railways and canals, in as large a measure as the powers formerly exercised by the Board of Trade.

(e.) The granting of damages and redress for illegal charges and undue preferences.

(f.) The Commissioners to have power, on the joint application of parties, to act as referees in rating appeals.

8. That the Railway Commissioners should deliver separate judgments when not unanimous.

9. One appeal to be granted as of right from the judgments of the Commission, and "prohibition" as well as "*certiorari*" to be forbidden.

10. High Court of Justice to have power to refer to Railway Commission cases which involve questions under the railway and canal traffic acts.

11. We recommend that the amalgamation of Irish railways be promoted and facilitated in every way, including, if necessary, direct Parliamentary action.

12. The question of canals in Ireland being under different conditions to that of canals in England, and large districts in Ireland having no other means of communication, we recommend that powers be given to local authorities or public trusts to acquire, extend and maintain such canals in that country as may be deemed for the public benefit of the districts affected.

13. That the Railway Commission should, from time to time, hold sittings as occasion may require, both in Scotland and Ireland.

July 27, 1882.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Ohio Central, annual meeting, in Toledo, O., Sept. 13. Transfer books closed Aug. 23.

Northern Pacific, annual meeting, at the office in New York, Sept. 19.

Railroad Conventions.

The *Railway Traveling Auditors' Association* will hold an adjourned meeting at the Louisville Hotel, Louisville, Ky., on Wednesday, Sept. 13, at 11 a. m. Members of the Association are requested to attend. All others desiring to become members are cordially invited on that occasion.

The *National Association of General Passenger & Ticket Agents* will hold its next semi-annual meeting at the Windsor Hotel, in Montreal, Sept. 19, beginning at 11, a. m.

The *Master Car-Painters' Association* will hold its annual convention in Chicago, beginning Sept. 20.

The *Master Car-Builders' Association* will meet in convention, pursuant to adjournment, on Oct. 10, at Niagara Falls.

The *American Society of Mechanical Engineers* will hold its stated annual meeting in New York, Nov. 2. Arrangements for the meeting will be announced hereafter.

Dividends.

Dividends have been declared as follows:

Norfolk & Western, 1 per cent., quarterly, on the preferred stock, payable Sept. 15. Transfer books close Aug. 31.

Chicago & Alton, 4 per cent., semi-annual, payable Sept. 1.

Delaware & Hudson Canal Co., 1¾ per cent., quarterly, payable Sept. 11.

Foreclosure Sales.

The *Bedford, Springville, Owensboro & Bloomfield* road was sold in Indianapolis, Aug. 22, under a decree of the United States Circuit Court, and bought for $1,200,000 by Mr. Aquilla Jones, representing the Indianapolis Rolling Mill Company, the chief owner of the bonds. The road is of 3 ft. gauge, and runs from Bedford, Ind., to Switz City. It is not a valuable property.

Niagara Classification Meeting.

The meeting held at Niagara Falls last week, to secure some uniformity in freight classifications, adjourned without taking any action. It was decided to attempt to secure more harmony between the different Western classifications, but nothing was done towards making the Eastern and Western classifications uniform.

ELECTIONS AND APPOINTMENTS.

Chesapeake & Ohio Canal.—Mr. Lewis Cass Smith, of Hagerstown, Md., has been chosen President in place of Henry D. Farnandis, who was elected at the annual meeting, but afterwards declined.

Cincinnati, Hamilton & Dayton.—The following appointments have been made: C. B. Marsh, Auditor: A. H. McLeod, General Freight Agent; Samuel Stevenson, General Passenger Agent.

Coudersport & Port Allegheny.—Mr. B. A. McClure has been appointed General Superintendent. He was formerly connected with the McKean & Buffalo road.

Des Moines Northern.—Mr. C. F. Meek has been appointed Superintendent. He was recently Train-Master of the Iowa Division of the Chicago, Rock Island & Pacific.

Grand Trunk.—Under the consolidated company, Mr. Charles Stiff, late Assistant General Manager of the Great Western, is made Superintendent of the lines formerly belonging to the Great Western Company. Mr. C. K. Domville, Locomotive Superintendent; J. Hobson, Chief Engineer, and W. Edgar, General Passenger Agent, are continued in their respective positions over the same lines.

Great Eastern Line.—Mr. H. G. Bird is appointed General Western Agent, with office in Chicago. He was recently Chicago Agent for the Chicago & Grand Trunk.

New York, Lake Erie & Western.—Mr. Charles Neilson, late of the Delaware Division, has been appointed Superintendent of the Buffalo and Rochester Divisions, in place of Charles W. Gardner.

Mr. Wm. J. Murphy succeeds Mr. Neilson as Superintendent of the Delaware Division. He has been for a long time Train Dispatcher and later Assistant Superintendent of that division.

Pittsburgh, Cincinnati & St. Louis.—Mr. Charles Watts has been appointed Superintendent of the Western Division of this company's Columbus, Chicago & Indiana Central line, including the lines from Logansport to Chicago, and from Logansport to State Line. Mr. Watts has been for a long time Train-Master of the New York Division of the Pennsylvania Railroad.

Mr. C. B. Street is appointed Master Mechanic of the Pittsburgh & Columbus Division in place of Ross Kells, who goes to the New York, Chicago & St. Louis road. Mr. Street was recently Master Mechanic of the West Pennsylvania Division of the Pennsylvania Railroad.

Sabine & East Texas.—Mr. A. F. Smith has been appointed Auditor in place of A. H. Viele, resigned. Mr. F. M. Reynolds has been chosen a director in place of Mr. Viele.

St. Paul, Minneapolis & Manitoba.—At the annual meeting in St. Paul, Minn., Aug. 18, the following directors were chosen: R. B. Angus, R. B. Galusha, James J. Hill, St. Paul; Donald A. Smith, George Stephen, Montreal; D. Willis James, John S. Kennedy, New York.

The board elected James J. Hill, President; John S. Kennedy, Vice-President; Edward Sawyer, Secretary and Treasurer; W. R. Nicholas, Assistant Secretary. Mr. Hill succeeds Mr. George Stephen as President, Mr. Kennedy taking Mr. Hill's place as Vice-President.

Tennessee Southern.—At the annual meeting in Memphis, Tenn., Aug. 15, the following officers were chosen: President, R. T. Wilson, New York; Vice-President, Eugene Martin; Secretary and Treasurer, C. A. Bosher: General Manager and Assistant Treasurer, James M. Edwards; Chief Engineer, John A. Grant.

West Pennsylvania & Shenango Connecting.—The officers of this company are: President, John T. Blair; Vice-President, John M. Thompson; directors, J. N. DuBarry, Thomas P. Fowler, John P. Green, H. H. Steele, W. C. Stinson, James A. Stranahan; Secretary and Treasurer, I. D. Stinson. Office at Greenville, Pa.

PERSONAL.

—Mr. C. L. Leslie is no longer Superintendent of the New York, Texas & Mexican road,

—Mr. Henry F. Myers is now Chief Engineer of the Elqui Railroad, with headquarters at La Serena, Chili.

—Mr. A. H. Viele has resigned his position as Vice-President and Auditor of the Sabine & East Texas Company.

Mr. J. E. Tucker has resigned his position as Foreign Freight Agent of the New York, Lake Erie & Western road in Chicago.

—Mr. Boykin Billups has resigned his office as Assistant Engineer on the Pensacola & Atlantic road, to accept a position on the new Memphis & Vicksburg road.

—It is reported that Mr. B. S. Henning has resigned his position as Vice-President of the Indiana, Bloomington & Western road, and that he will go to Florida to live.

—Mr. Frederick Broughton, General Manager of the Great Western Railway, of Canada, retires from that position on account of the consolidation of the road with the Grand Trunk.

—Mr. P. E. Robinson has resigned his position as Assistant General Passenger Agent of the Sioux City & Pacific road, and has accepted a position in the general ticket office of the Union Pacific road.

—Mr. George M. Bryant, an old and well-known contractor, died at Mt. Vernon, O., Aug. 18, aged 57 years. He had had contracts on the Little Miami, the Cincinnati, Hamilton & Dayton, and many other roads.

—Mr. C. C. F. Bent, Superintendent of the Western Division of the Columbus, Chicago & Indiana Central line of the Pittsburgh, Cincinnati & St. Louis road, has resigned, to accept a position on the New York & New England road.

—Mr. Charles W. Gardner, Superintendent of the Buffalo and Rochester divisions of the New York, Lake Erie & Western road, has resigned on account of ill health. He will reside in Bradford, Pa., for the present, and will still remain in the company's service.

—Mr. Chas. G. Batcheller, Line Engineer of the section from the Maule River to Yumbel on the Chilian State Railway, died suddenly of paralysis in Talca, Chili, June 6, last. Mr. Batcheller had served under the orders of the late Benj. H. Latrobe, on the Cumberland Extension of the Pittsburgh & Connellsville Railroad, and was a civil engineer of excellent standing and many kindly memories, both in the United States and in South America.

—The Philadelphia *North American* says: "It is understood that when First Vice-President Cassatt resigns his position in the Pennsylvania Railroad Company, on Oct. 1, Mr. Edmund Smith will be made First Vice-President. He will continue his present duties, which embrace the financial and accounting departments of the road. Mr. Frank Thomson, now General Manager, will become Second Vice-President, and succeed to Mr. Cassatt's duties, which comprise particularly the supervision of the transportation department, the management of the passenger and freight business, and the special charge of the relations with connecting and competing lines. In 1874, Mr. Thomson was Mr. Cassatt's successor as General Manager."

—At a meeting of the Georgia Railroad Commission in Atlanta, Aug. 11, the following was ordered to be entered on the minutes:

"It is announced in the morning papers that William M. Wadley, President of the Central Railroad & Banking Company, died at Saratoga Springs, N. Y., yesterday.

"In our official capacity we have been brought in close connection with Mr. Wadley since the existence of the Commission. It is proper for us to say that we hear of his death with deep regret. From his long identification with the railroad interests of the country, we deem it proper to place upon our records a testimonial to his ability, integrity and fidelity to important trusts so long confided to him, and instruct the Secretary to send a copy of this to his family, with a tender to them of our condolence in the irreparable loss which they have suffered."

—Mr. B. B. Redding, Land Commissioner of the Central Pacific Company, died in San Francisco, Aug. 21. Mr. Redding, whose death took place suddenly from apoplexy, was one of the old Californians who went to the Pacific Coast overland from the West very soon after the news of the discovery of gold reached the older states. He was a man of active mental and physical habits, a trained observer of nature, and a devoted student. After some wanderings he fixed his abode in Sacramento, where he remained until a few years since, when his duties as Land Commissioner of the Central Pacific called him to San Francisco. Mr. Red-

ding enjoyed many public honors, having been Secretary of State, a Regent of the State University, and several times a member of the Legislature. He was also a member of the State Fish Commission, in which capacity he exhibited great intelligence and zeal in introducing food fishes from eastern waters into those of his own state. He was enthusiastically devoted to the encouragement of every art and industry that promised to benefit California, and his death, which has occurred when he was at the ripe age of 60 years, will be deeply regretted all over the Pacific Coast.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows :

	1882.	1881.	Inc. or Dec.	P. c.
Seven months ending July 31 :				
Ala. Gt. Southern....	$423,587	$404,835	I. $18,654	4.6
Buff., Pitts. & W.. ..	465,879	353,803	I. 112,076	32.0
Net earnings.	246,094	103,954	I. 142,140	136.0
Gulf, Col. & S. F....	581,920	440,348	I. 141,572	32.2
Kan. City, Ft. Sc. & G.	904,567	816,330	I. 88,240	10.8
Nash., Ch. & St. L...	1,047,736	1,229,655	D. 181,919	14.8
Net earnings.....	440,889	484,529	D. 43,640	9.0
Norfolk & Western..	1,216,494	1,168,504	D. 47,990	4.1
Net earnings.....	489,202	516,834	D. 27,632	5.3
Northern Central....	3,161,354	3,102,679	I. 58,675	1.6
Net earnings.....	1,100,016	1,103,724	D. 3,708	0.3
Pennsylvania	26,799,899	25,334,258	I. 1,365,741	5.7
Net earnings.	9,837,017	10,487,927	D. 650,910	6.2
Phila & Reading.....	11,557,956	10,972,814	I. 585,137	5.3
Net earnings	4,809,571	4,728,304	I. 81,267	1.7
South Carolina.....	646,785	648,514	D. 1,729	0.3
Vicksburg & Mer. ..	245,019	.....	.....	....
Six months ending June 30 :				
Boston & N. Y. A. L.	$143,950	$133,843	I. $10,107	7.5
Month of June :				
Boston & N. Y. A. L.	$25,360	$24,322	I. $1,038	4.3
Month of July :				
Ala. Gt. Southern....	$61,041	$57,982	I. $3,059	5.3
Buff., Pitts. & W.....	82,723	56,737	I. 25,986	45.8
Net earnings.....	42,945	15,714	I. 27,231	173.4
Gulf., Col. & St. F..	93,733	66,052	I. 27.671	41.9
Kan City, Ft. S. & G..	133,774	122,394	I. 11,380	9.3
Nash., Chatta.& St. L.	160,990	150,430	I. 10,560	6.7
Net earnings..... .	67,284	50,626	I. 16,958	32.9
Norfolk & Western..	191,535	173,375	I. 18,160	10.5
Net earnings.....	84,742	80,862	I. 3,880	4.8
Northern Central....	509,683	440,811	I. 68,872	15.2
Net earnings..... .	222,785	63,268	I. 159,522	253.0
Pennsylvania	4,149.150	3,780,418	I. 368,732	8.6
Net earnings.....	1,647,093	1,490,971	I. 156,122	10.4
Phila. & Reading....	2,026,459	1,835,725	I. 190,734	10.4
Net earnings.....	994,632	925,484	I. 69,148	7.5
South Carolina.....	68,462	63,984	I. 4,478	7.0
Vicksburg & Mer....	26,627	31,677	D. 5,050	15.8
Second week in August :				
Bur., C. Rap. & No..	$47,028	$43,438	I. $3,590	8.2
Ches. & Ohio.....	75,009	68,953	I. 6,056	8.8
Chi. & Eastern Ill....	38,980	44,303	I. 2,677	7.9
Chi. & Gd. Trunk....	34,266	33,166	I. 1,100	33.3
Mo. Pacific lines.. ..	614,562	556,981	I. 57,601	10.3
Northern Pacific.....	168,350	98,020	I. 70,340	71.8
St. P., Minn. & Man..	202,303	97,516	I. 104,787	107.4
Wab., St. L. & P.....	438,725	373,943	I. 64,782	17.3

Grain Movement.

For the week ending Aug. 12 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past six years :

Year.	Northwestern receipts.	Northwestern shipments.—Total.	By rail.	P. c. by rail.	Atlantic receipts.
1876....	3,926,489	3,764,548	1,614,256	42.8	2,913,160
1877 ...	5,455,322	4,426,953	934,691	21.1	4,589,353
1878....	8,147,091	5,328,243	1,497,000	28.1	6,417,891
1879....	6,268,777	6,335,513	1,705,237	26.9	7,685,354
1880....	7,643,310	6,635,931	2,105,119	31.9	8,193,567
1881....	6,695,745	5,848,709	2,079,820	35.6	5,797,821
1882 ...	3,503,366	3,931,156	1,568,722	39.9	5,279,500

The receipts of the Northwestern markets for the week were smaller than in any corresponding week since 1873 at least, they were 48 per cent. less than last year, and were 2,271,000 bushels (39 per cent.) less than the previous week of this year, and the smallest for four weeks.

The shipments of these markets were 1,917,000 bushels (32¾ per cent.) less than in the corresponding week of last year, and smaller than in any corresponding week since 1876. There were also about 1,200,000 bushels (23⅓ per cent.) less than the previous week of this year, and the smallest for four weeks. The rail shipments were smaller than in the two weeks previous, but larger than in any other since navigation opened, though 511,000 bushels (25 per cent.) less than last year. The gross earnings from the west have been about at the rate of $125 this year for every $100 last, while the net earnings must have grown more in proportion. The shipments down the Mississippi were 372,564 bushels, or 9⅓ per cent. of the whole.

The receipts of the Atlantic ports were smaller than in any corresponding week since 1877, but only 518,000 bushels less than last year, and 379,000 less than in the previous week of this year, and with the exception of that week they were the largest of the year, the recent decline of the Northwestern movement not yet being felt at the seaboard, which were receiving the Northwestern receipts of one or two weeks before.

The decline from the previous week was almost entirely in wheat, the price of which had fallen so as no longer to make the farmers hasten to market the crop.

Of the Northwestern receipts for the week Chicago had 34.9 per cent., St. Louis 32.5, Toledo 13, Peoria 6.9, Cleveland 6.4, Detroit 2.5, Milwaukee 2.1, and Duluth 0.7 per cent. The chief decrease from the previous week—1,438,000 bushels out of 2,271,000—was at Chicago, whose receipts were the smallest since the first week of July. Meanwhile St. Louis lost 355,000 bushels, and Toledo 563,000, while Cleveland and Peoria gained.

Of the Atlantic receipts Baltimore had 35.2 per cent., New York 34.2 per cent., Philadelphia 12.2, Montreal 7.9, Boston 5.4, New Orleans 4.9, and Portland 0.2 per cent. Baltimore thus received more than New York, which has happened but very few times in the history of the grain trade. Compared with the previous week, however, Baltimore's grain was chiefly at the expense of Montreal and New Orleans. and not of New York. Its receipts were the largest of the year, and larger than in any previous week except two in 1879 and three in 1880. Nearly 98 per cent. of its receipts were wheat, of which it received 558,000 bushels more than New York, and 41 per cent. of the total wheat received at the sea board.

Of the exports of this week, New York had 39 per cent., Baltimore 30.8, Philadelphia 10.7, Montreal 8.5, New Orleans, 5.7, and Boston 5.3 per cent. The exports of New Orleans for the last three weeks have been 534,997 bushels, against 245,145 bushels in the *four months* previous. They have been, however, but a small proportion of the total exports in these latter weeks.

For the week ending Aug. 16, exports from Atlantic ports were 4,404,589 bushels of grain and 94,929 barrels of flour this year, against 4,019,291 bushels and 7,111 barrels last year, and 8,161,262 bushels and 97,585 barrels in 1881. This year 95¾ per cent. of the grain exports were wheat, last year 71¾ per cent.

For the week ending Aug. 19, receipts and shipments at Chicago and Milwaukee were:

	Receipts. 1882.	Receipts. 1881.	Shipments. 1882.	Shipments. 1881.
Chicago.....	1,859,956	4,045,644	2,190,435	3,241,959
Milwaukee.....	88,385	266,585	51,426	210,899
Both	1,948,341	4,312,229	2,241,861	3,452,858

The receipts were thus 55 per cent. and the shipments 35 per cent. less this year than last. The receipts were, however, nearly one half greater than the week before. For five successive weeks, they have been:

Week ending July 22.	July 29.	Aug. 5.	Aug. 12.	Aug. 19.
2,891,664	3,318,190	2,824,962	1,337,453	1,948,341

For this week ending Aug. 19 receipts and shipments at Buffalo were:

	Receipts. 1882.	Receipts. 1881.	Shipments. 1882.	Shipments. 1881.
By rail.....	607,800	1,878,600	911,100	1,186,220
By water.....	1.799,500	796,700	1,912,660	1,428,600
Total.....	2,407,300	2,675,300	2,823,760	2,614,820
Per cent. by rail.	25.1	70.2	32.3	45.4

The total receipts are but 10 per cent. less than last year, while the rail receipts are 67⅓ per cent. less and the lake receipts 125 per cent. greater. There was an *increase* of 8 per cent. in the total shipments made by a *decrease* of 23 per cent. in rail and an increase of 34 per cent. in the canal shipments.

For the week ending Aug. 19 receipts at four Eastern ports were :

Bushels:	New York.	Boston.	Phila.	Baltimore.	Total.
1882.. ..	2,444,565	190,790	562,950	1,042,648	4,240,953
1881.....	2,352,232	447,241	655,091	1,350,621	4,805,185
1880.....	2,366,541	902,672	901,800	1,495,929	5,666,942
P. c. of total:					
1882. ...	57.7	4 5	13.2	24.6	100.0
1881... .	49.0	9.3	13.6	28.1	100.0
1880.....	41.8	15.9	15.9	26.4	100.0

Compared with the previous week there is a large increase at New York (555,000 bushels), a small decrease at Baltimore, and a large one at Boston.

Philadelphia and Baltimore together received 37.8 per cent. of the whole this year, against 41.7 last year and 42.3 in 1880.

Of the New York receipts 1,322,800 bushels (54 per cent. of the whole) arrived by canal this year, against 411,000 (17 per cent.) last year, and 1,195,654 bushels (50½ per cent.) in 1880, The difference is explained by the low rail rates of last year.

Receipts of wheat, corn and oats at Chicago, Milwaukee, Detroit, Peoria, Indianapolis and Toledo for the first three weeks of August were:

Week to—	Wheat.	Corn.	Oats.
Aug. 7.....	1,784,228	1,004,752	318,235
" 14.....	906,261	1.087,498	535,036
" 21.....	1,188,838	1,370,026	1,372,933

The enormous receipts of oats in the last week are especially remarkable. To a considerable extent they take the place of the corn receipts, which are usually much larger at this season.

Coal Movement.

Coal tonnages for the week ending Aug. 12 are reported as follows :

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite.....	648,808	628,718	I. 20,090	3.2
Semi-bituminous.....	85,184	99,149	D. 13,965	14.1
Bituminous, Penna....	45,669	50,885	D. 5,216	10.2
Coke, Penna.....	48,602	48,366	I. 236	0.5

The anthracite companies have resolved to suspend production on Aug. 31, and Sept. 1, 2, 7, 8 and 9. It is understood that there will be an increase in the September price lists.

The Cumberland strike is over. A conference was held last week, at which the operators stated their decision not to give way. This was followed by a break among the strikers, a large number applying to the companies for work, and at a meeting of the Knights of Labor it was finally decided to declare the strike at an end on Aug. 24. By next week most of the mines will be fully at work.

The coal tonnage of the Pennsylvania Railroad for the week ending Aug. 12 was : Coal, 150,469; coke, 48,602; total, 199,071 tons. The total tonnage this year to Aug. 12 was 6,692,807 tons.

Cumberland coal tonnage for the week ending Aug. 19 was 13,004 tons, of which 4,570 tons were shipped over the Cumberland & Pennsylvania road, 467 tons direct from mines to Baltimore & Ohio road, and 7,967 tons over West Virginia Central & Pittsburgh road. The total tonnage this year to Aug. 19 was 609,779 tons.

Coal shipments over the Columbia & Puget Sound road and by sea from Seattle, Wash. Ter., in July were 6,733 tons. For the seven months to July 31 they were: 1882, 85,830; 1881, 85,690; increase, 140 tons, or 0.2 per cent.

The strike of the miners on the line of the Pittsburgh, Cincinnati & St. Louis road west of Pittsburgh is at an end, the men going to work at the old rate of 3½ cents per bushel. The strike was for 4 cents. A large number of new men have been brought in, and some of the strikers will have to go elsewhere.

The Official Accountant's statement of anthracite coal traffic for July and the seven months ending July 31 is as follows:

	July. 1882.	July. 1881.	Seven months. 1882.	Seven months. 1881.
Phila. & Reading	653,499	639,579	3,469.173	3,564,665
Lehigh Valley.....	548,743	492,034	3,168,435	2,990,438
Central of N. J..... ..	416,072	378,635	2,304,445	2.210,045
Del., Lacka. & West..	441,135	381,509	2,460,393	2,330,357
Del. & Hudson Canal Co....	296,932	285,804	1,662,303	1,702,043
Pennsylvania R R. Co.	218.489	206,517	1,275.289	1,240,442
Pennsylvania Coal Co.	151,503	140,290	756,383	731,868
N. Y., Lake Erie & West	30,876	47,732	137,680	269,740
Total.....	2,757,249	2,572,100	15,325,101	15,039,597

Increase for the month, 185,149 tons, or 7.2 per cent.: increase for the seven months, 285,504 tons, or 1.9 per cent. For the month all the companies except the Erie show an increase; for the seven months the Reading, the Delaware & Hudson and the Erie show a decrease, the other companies an increase. The Reading's decrease is very small.

The stock of coal on hand at tidewater shipping points on July 31 was 575,532 tons, against 583,936 tons on June 30, a decrease of 8,404 tons, or 1.5 per cent.

Provision Exports.

The value of exports of provisions (meats, lard, tallow, butter and cheese) in July and the seven months ending with July, the Bureau of Statistics reports as follows:

	1882.	1881.	Decrease.	P.c.
July.....	$8,754,524	$11,546,504	$2,791,980	24.2
Seven months....	59,462,714	82,711,843	23,249,127	28.1

In quantities there was a decrease in July of 84 per cent. in fresh beef, 45½ per cent. in salt beef, of 32 per cent. in hog products (in spite of an increase of 40 per cent. in lard), of 59 per cent. in tallow, of 78 per cent. in butter, and of 23⅜ per cent. in cheese. A larger domestic consumption as well as reduced production caused this great decrease in exports.

New Illinois Schedules of Reasonable Maximum Rates.

The new freight rates on short hauls of grain, flour and lumber recently established by the Railroad and Warehouse Commissioners of Illinois and adopted by the railroads in the state are as follows:

For railroads included in Class A, which are the Baltimore & Ohio, Chicago & Alton, Chicago, Burlington & Quincy, Chicago & Grand Trunk, Chicago, Milwaukee & St. Paul, Chicago & Northwestern, Chicago, Rock Island & Pacific, Chicago & Western Indiana, Cincinnati, Indianapolis, St. Louis & Chicago, Lake Shore & Michigan Southern, Michigan Central and Pennsylvania Company:

CAR-LOADS OF 20,000 LBS. OR OVER.

DISTANCE IN MILES.	IN CENTS PER 100 LBS. Wheat	All grain and mill stuffs except wheat	Soft lumber	Flour and meal in cents per barrel.
2 miles and under.....	3.50	3.00	3.00	7.00
4 miles and over 2....	4.50	4.00	3.50	9.00
5 miles and over 4....	5.00	4.50	4.00	10.00
10 miles and over 5....	5.50	5.00	4.50	11.00
15 miles and over 10....	6.00	5.35	5.00	12.00
20 miles and over 15....	6.35	5.70	5.35	12.70
25 miles and over 20....	6.70	6.00	5 70	13.40
30 miles and over 25....	7.00	6.30	6.00	14.00
35 miles and over 30....	7.35	6.60	6 25	14.70
40 miles and over 35....	7.70	6.90	6.50	15.40
45 miles and over 40....	8.00	7.20	6.75	16.00
50 miles and over 45....	8.35	7.50	7.00	16.70
55 miles and over 50....	8.70	7.80	7.25	17.40
60 miles and over 55....	9.00	8.10	7.50	18.00
65 miles and over 60....	9.35	8.40	7.75	18.70
70 miles and over 65....	9.70	8.70	8.00	19.40
75 miles and over 70....	10.00	9.00	8.25	20.00
80 miles and over 75....	10.20	9.30	8.50	20.40
85 miles and over 80....	10 40	9.50	8 75	20.80
90 miles and over 85....	10.60	9.70	9.00	21.20
95 miles and over 90....	10.80	9.85	9.25	21.60
100 miles and over 95....	11.00	10.00	9.50	22.00

For railroads in Class B, which comprise the Bowlerville Mining Company, Chicago & Eastern Illinois, Chicago, Pekin & Southwestern, Chicago & Western, Danville, Chicago & Ohio River, East St. Louis & Carondelet, East St. Louis Connecting, Fulton County Extension, Fulton County Narrow-Gauge, Grand Tower Mining, Manufacturing & Transportation Company, Illinois Central, Illinois Midland, Illinois & St. Louis, Indiana, Bloomington & Western, Indiana, Illinois & Iowa, Indianapolis & St. Louis, Jacksonville Southeastern, Lake Erie & Western, Louisville, New Albany & Chicago, Louisville, Evansville & St. Louis, Louisville & Nashville, Moline & Southeastern, Ohio & Mississippi, Peoria, Decatur & Evansville, Peoria & Farmington, Peoria & Pekin Union, Pittsburgh, Cincinnati & St. Louis, Rock Island & Mercer County, Rock Island & Peoria, St. Louis, Alton & Terre Haute, St. Louis Coal Company, St. Louis & Cairo, Springfield, Effingham & Southeastern, Sycamore, Cortland & Chicago, Terre Haute & Indianapolis, Toledo, Cincinnati & St. Louis, Wabash, St. Louis & Pacific:

CAR-LOAD OF 20,000 LBS., OR OVER.

DISTANCE IN MILES.	IN CENTS PER 100 LBS. Wheat	All grain and mill stuffs except wheat	Soft Lumber	Flour and meal, in cents, per barrel
2 miles and under.....	3.65	1.15	3.15	7.35
4 miles and over..... 2	4.70	4.20	3.65	9.45
5 miles and over..... 4	5.25	4.70	4.20	10.50
10 miles and over..... 5	5.75	5.25	4 70	11.55
15 miles and over.....10	6.30	5.65	5.25	12.00
20 miles and over.....15	6.65	6.00	5.65	13.30
25 miles and over.....20	7.00	6.30	6.00	14.15
30 miles and over.....25	7.35	6.60	6.30	14.70
35 miles and over.....30	7.70	6.90	6.55	15.45
40 miles and over.....35	8.05	7.20	6.80	16.15
45 miles and over.....40	8.40	7.55	7.10	16.80
50 miles and over.....45	8.75	7.85	7.35	17 50
55 miles and over.... 50	9.10	8.20	7.60	18.25
60 miles and over.....55	9.45	8.50	7.85	18.90
65 miles and over.....60	9.80	8.85	8.10	19.60
70 miles and over.....65	10.15	9.15	8.40	20.35
75 miles and over.....70	10.50	9.45	8.65	21.00
80 miles and over.....75	10.70	9.75	8.90	21.40
85 miles and over.....80	10.90	10.00	9.15	21.80
90 miles and over.....85	11 10	10.20	9.45	22.25
95 miles and over.....90	11.30	10.35	9.70	22.65
100 miles and over.....95	11.50	10.50	10.00	23.00

Chicago and Milwaukee Receipts.

For the three months ending Aug. 21, receipts were :

	1879.	1880.	1881.	1882.
Chicago:				
Grain, bushels 9,183,105	11,370,561	12,380,470	5,575,817	
Flour, barrels.....	135,682	175.521	322,381	138.637
Hogs, No.....	180,811	287,909	295,816	185,208
Milwaukee :				
Grain, bushels.....	491.975	470,580	628,952	283,040
Flour, barrels.....	86,042	140,187	196,751	133,357
Hogs, No....	5,141	13,533	17,999	15,066

The receipts of grain and flour were about half as great as last year.

Reducing flour to grain, the aggregate receipts of the two places for the four years have been :

Week to—	1879.	1880.	1881.	1882.
Aug. 7.. ...	3,915.445	4,222,984	4,495,414	2,864,585
" 14.....	3,333,414	4,320,987	4,701,811	1,731,553
" 21.. ..	3,393,979	4,717,856	5,148,391	2,486,692
Three weeks.	10,672,838	13,261,827	14,345,616	7,082,830

This shows receipts last week 43⅓ per cent. greater than the week before, and 13⅓ per cent. less than in the first week of August. For the three weeks, the receipts are 50½ per cent. less than last year. The hog receipts are a third less than in 1880 and 1881, but a little greater than in 1879.

Reduction in Passenger Rates between Chicago and Iowa Points.

Owing to the opening of the Chicago, Milwaukee & St. Paul's new line to Council Bluffs, the sum of local rates in

Illinois and Iowa to some of the junction points in Iowa became less than the through rates by the old lines. In consequence of this some small reductions have been made in the rates from Chicago to these points, to go into effect Sept 1. This change was telegraphed from Chicago all over the country as made by the Chicago, Burlington & Quincy to points on the Rock Island, and was naturally interpreted by some as the beginning of a competition between these two roads, which might result in a railroad war. The new rates, however, are made alike by all the lines that reach the different places, and the reduction from the old rates is not great.

Traffic of New York Canals.

For the week ending Aug. 14, the Canal Auditor reports:

	1882.	1881.	Inc. or Dec.	P. c.
No. tons shipped	187,914	192,207	D. 4,293	2.2
Miles cleared by boats	238,418	251,951	D. 13,533	5.4
Tolls	$26,052	$23,517	I. $2,535	10.8

The tons shipped of leading were:

	1882.	1881.	Inc. or Dec.	P. c.
Lumber	58,348	61,624	D. 3,276	5.3
Grain	42,765	29,717	I. 13,048	43.9
Iron and iron ore	17,163	25,748	D. 8,585	33.3
Salt	5,962	4,971	I. 991	20.0
Stone, lime and clay	10,253	9,840	I. 413	4.2
Coal	39,284	45,653	D. 6,369	14.0
Domestic woolens and cottons	138	428	D. 290	68.0
Sugar, molasses and coffee	390	372	I. 18	5.0

The decrease in total shipments is very small, due chiefly to larger shipments of grain this year, which nearly all went by rail last year. The considerable decrease in iron is unfavorable.

Rates for Theatrical Baggage.

The General Passenger Agents of the Eastern trunk lines have issued the following circular in regard to rates for baggage and scenery for theatrical companies and their advance agents, to go into effect Aug. 15.

"At a meeting of the General Passenger Agents of the Trunk Lines, held Aug. 11, it was

"*Resolved*, That in response to the application of theatrical companies free transportation for 500 pounds of baggage, to consist of advertising material, with their personal apparel, and to be contained only in trunks, will be allowed. Scenery shall be considered as baggage, and will be carried by weight, when it is compact in form and does not necessitate the hauling of extra cars for storing it, at regular excess baggage rates for extra weight over 200 pounds per ticket. Scenery and baggage in car load lots will be charged for at the rate of 25 cents per mile for distances of 500 miles and under, and 20 cents per mile for distances over 500 miles. Short line distances to be used as a basis in computing such rates between competitive points."

Texas Fast Freight Agents.

Commissioner Fink has just issued the following circular regarding a vote on withdrawal of soliciting or line agents from Texas:

"At the recommendation of the Trunk Line Executive Committee the following resolution is herewith submitted to the Joint Executive Committee:

"*Resolved*, That on and after Sept. 1, 1882, no soliciting agents for freight shall be employed in Texas by any company on the Joint Executive Committee or by any fast-freight line running over the road of same company, and that existing agencies shall be withdrawn upon notice being given by the Commissioner that the resolution has been adopted by the Joint Executive Committee."

This withdrawal of fast freight line agents has been requested by all the Texas lines.

Pacific Coast Contracts.

J. F. Goddard, General Freight Agent of the Atchison, Topeka & Santa Fe Railroad, calls the attention of shippers to that part of a circular issued by Richard Gray, General Freight Agent Southern and Central Pacific Railways, to the merchants and importers of San Francisco, Sacramento, Stockton, Marysville, Cal., and Portland, Ore., which reads as follows:

"Please take notice that the Atchison, Topeka & Santa Fe Railway from Kansas City and Atchison, via Deming, in connection with the Southern Pacific Railway, forms a through line from the Missouri River to all Pacific coast points. The Atchison, Topeka & Santa Fe Railway have other points of connection with systems of railways, forming lines between all points in the United States and Canada, and their manager claims to be working with said connections with equal facilities and advantages. Merchants and importers having contracts for the transportation of their goods exclusively by rail are advised that the above-named company is a party to said contracts, and all goods forwarded by this line will be entitled to and will pass at contract rates.

"Heretofore in soliciting freight the Atchison, Topeka & Santa Fe has been informed by a great many shippers that consignee holds contract with Union Pacific Railway, and rates apply only upon shipments made via that line, thus absolutely preventing this line from meeting its competitors upon equal grounds.

"Therefore the Atchison, Topeka & Santa Fe desires to call the attention of shippers at Missouri, Mississippi and Ohio River points, St. Louis, Chicago, Detroit, Toledo, Cleveland, Buffalo, Pittsburgh, Philadelphia, New York, Boston and New England points to the fact that it is a party to all Pacific coast contracts, and will protect shippers and merchants in any and all rates named via the Northern route."

Rates from Cincinnati on East-Bound Traffic from Points South of the Ohio River.

Commissioner Fink has just issued the following circular regarding rates from Cincinnati on east-bound traffic from points south of the Ohio River:

"At a meeting of the Trunk Line Executive Committee, acting as a standing committee, held Friday, Aug. 11, 1882, the agreement of the Cincinnati roads, June 27, 1882, allowing to the west-end lines two and three cents for transfer on business coming from the Louisville & Nashville and Kentucky Central Railroads over the bridge, was under consideration. It was considered that full Cincinnati rates should be maintained without exception on all shipments made locally to Cincinnati and those reconsigned to the East; that the allowance for the transfer named in said circular should be allowed only on business from competing points south of Cincinnati when contracted through from such points to the Eastern cities on through bills of lading. In such cases there must be a full understanding as to the rates and divisions, and the same must be submitted to this office for approval, and the way-bills must show original point of shipment, route, rates, divisions in detail, and advanced charges. All waybills which do not contain this information will be considered as covering shipments which should be rated locally from Cincinnati."

Guarding Against Carelessness of Shippers.

To avoid the confusion, delay and positive loss which is occasioned by the carelessness on the part of shippers and agents, the Chicago, Milwaukee & St. Paul Company has issued the following rules:

"General rules require that all property offered for transportation shall be distinctly marked with the owner's or consignee's name and address, and there is no good reason why they should not be enforced in the case of all package freight, except perhaps flour in barrels, whose brands or trade-marks enable it to be readily checked. The rule is especially important in shipments of butter, eggs or cheese, and the agent will decline to receive and forward, except in car-lots to one consignee, unless each package is plainly marked with the name of consignee and destination, or some distinguishing mark to indicate the same. Such packages must show the initials of some mark to indicate the shipper as well. If no other is adopted you will mark on each package the number of your station. Such number, or the shipper's mark adopted by him, will be shown in the consignor's column of your way-bill in connection with his name. If shippers or consignors, to protect their interests, wish to indicate the consignee by initial or mark only on the property, such mark, tag or card must in every instance show destination, whether going to a local or terminal station on this road or point beyond. These rules are imperative and made absolutely necessary for the proper identification of consignments at destination or transfer points. The propriety of the requirement is not a matter left to the discretion of shippers or agents, and receiving stations are directed to report any omission or neglect in this respect. Shipping or dray tickets, bills of lading or receipts, as well as way-bills, must show all the marks above indicated. Agents are required to call the attention of shippers to the above and obtain compliance therewith. The instructions herein will apply for shipments of egg cases, filled or empty. Old marks or brands must be thoroughly erased before receiving or shipping any package freight."

Chicago & Ohio River Pool.

The new Ohio River pool takes in all the business originating at and going through Chicago to the following Ohio River points, and also covers everything going via those points to all points in the South: Aurora, Ind., Brighton, O., Cincinnati, O., Evansville, Ind., Indianapolis, Ind., Jeffersonville, Ind., Lawrenceburg, Ind., Louisville, Ky., Madison, Ind., New Albany, Ind., North Bend, O., North Vernon, O., and Seymour, Ind.

The roads and fast freight lines, parties to the new pool, are the Pittsburgh, Cincinnati & St. Louis (Green Line), Cincinnati, Indianapolis, St. Louis & Chicago (Kankakee Line), Chicago & Eastern Illinois (Southern Dispatch), and Louisville, New Albany & Chicago (Chicago & Louisville Southern Line). The business will be divided among these roads as follows: Pittsburgh, Cincinnati & St. Louis, 30 per cent.; Cincinnati, Indianapolis, St. Louis & Chicago, 30 per cent.; Chicago & Eastern Illinois, 20 per cent., and Louisville, New Albany & Chicago, 20 per cent.

Differential Passenger Rates.

The Joint Executive Committee passenger meeting which began in New York Aug. 22 was entirely occupied in the discussion of differential passenger rates.

No agreement among the roads having been reached on Tuesday it was decided to leave the fixing of rates to Commissioner Fink. Mr. Fink's award was submitted to the meeting, and, after long consideration, was adopted. The representatives of the Pennsylvania Company accepted the new second-class rates under protest. It is proposed to put them into effect on Sept. 1. The protest of the Pennsylvania Company is as equivalent to a notice that the new rates may be appealed to arbitration.

The new rates are somewhat different from those proposed at the last meeting of the Joint Executive Committee. Mr. Fink's decision recognizes the principle of allowing differences to the Eastern connections of the initial Western roads. The new schedule of rates from St. Louis to New York is as follows:

	First class.	Second class.
Pennsylvania Railroad lines	$24.25	$20.25
Wabash and New York Central	23.25	19.75
Wabash and Erie	21.75	19.00
Indianapolis & St. Louis and New York Central	23.25	19.75
Indianapolis & St. Louis and Erie	21.75	19.00
Ohio & Mississippi and Baltimore & Ohio	21.75	19.00
Ohio & Mississippi, New York, Pennsylvania & Ohio and Erie	21.00	18.50
Chicago & Alton and Lake Erie & Western	21.00	18.75

The first-class rates proposed at the July meeting, and given in the report we published last week, were $22.25 by the Wabash and the Indianapolis & St. Louis and all their connections, and by the Ohio & Mississippi-Baltimore & Ohio route, and was $21.25 by the other Ohio & Mississippi route and the Chicago & Alton.

From Chicago to New York Mr. Fink's decision, as accepted by the roads, fixes the first-class rates as follows:

Michigan Central and Erie	$18.50
Lake Shore and Erie	18.50
Grand Trunk and Erie	18.50
Pittsburgh, Ft. Wayne & Chicago and Erie	18.50
Michigan Central and New York Central	20.00
Lake Shore and New York Central	20.00
Baltimore & Ohio	18.50
Pittsburg, Ft. Wayne & Chicago and Pennsylvania	20.00

The only difference in these from those of the July meeting is an advance from $18 to $18.50 by the routes other than those over the Pennsylvania and the Vanderbilt roads.

Cincinnati rates it was agreed to fix as made at the July meeting, as follows:

	First class.	Second class.
Pennsylvania Railroad	$18.00	$16.00
Baltimore & Ohio	17.00	15.50
Erie, *via* Buffalo	17.00	15.50
Erie and New York, Pennsylvania & Ohio	16.00	15.00
New York Central	17.00	15.50

With these rates in force no commissions are to be paid on sales of tickets, by which means virtual differences in rates have been made heretofore.

The Committee was to hold a meeting Thursday, at which it was expected to settle rates to intermediate points. It was not thought that the question of the percentages of passenger earnings to be allowed different routes would be reached at this meeting, though the Wabash submitted the necessary statement of earnings.

Southwestern Association Rates.

A dispatch from Chicago, Aug. 23, says: "An important agreement affecting the earnings of all Southwestern pool lines was made at a meeting here to-day. The meeting grew out of the fact that the St. Louis & San Francisco, and Kansas City, Fort Scott & Gulf Railroads have for over a year been offering special inducements for freight between St. Louis and Kansas, *via* Springfield, Mo., although that route is more than twice as long as the direct lines of the Southwestern pool. It was a disturbing element and likely to cause a break in the pool. To obviate this, Commissioner Midgley was empowered to offer the Fort Scott line a monthly payment equal to its receipts from this traffic, but the proposition was rejected. Lately the Rock Island Company, a member of the pool, made a pro-rating arrangement with the Fort Scott line on the business to Springfield, Mo., via Kansas City, thus punishing the St. Louis & San Francisco Line. The result was to-day's meeting, at which the Fort Scott & San Francisco lines agreed to abandon the freight line between Kansas City and St. Louis via Springfield, Mo, and the Rock Island cancelled its pro-rating arrangement with the Fort Scott line, the other pool lines agreeing not to compete for traffic in territory properly belonging to the two offending lines."

THE SCRAP HEAP.

Locomotive Building.

The Rogers Locomotive Works, in Paterson, N. J., is filling a large order for passenger and freight engines for the Long Island road; they are all anthracite coal burners. The works have also completed several mogul freight engines for the New York, Susquehanna & Western road.

The Taunton Locomotive Co., at Taunton, Mass., is running full time, and has several orders to be filled.

Car Notes.

J. G. Brill & Co., in Philadelphia, are building 18 passenger cars for the Mexican Central road. Their works now employ 450 men.

The new buildings of the Lobdell Car Wheel Co., in Wilmington, Del., are completed, and most of the machinery is in place.

The Watt Mining Car Co., at Barnesville, O., is building an addition to its works, which will be used as a pattern shop and for building car-bodies.

Negotiations are pending for the establishment of car works at Ottawa, Can. They will be a branch of a large establisbment in the United States.

Bridge Notes.

The Cleveland Bridge & Car Works have just completed the draw and several other spans in the great bridge over the Cuyahoga River at Cleveland, O., on the New York, Chicago & St. Louis road.

The Massillon Bridge Co., at Massillon, O., has just completed a bridge over Tanner's Creek, near Indianapolis, for the Cincinnati, Indianapolis, St. Louis & Chicago road.

Clarke, Reeves & Co., at Phœnixville, Pa., have on hand the following bridge contracts: Schoharie bridge, 3 spans, each 163 ft. 1½ in.; Glenaire, 1 span, 153 ft. 1½ in.; Kentucky River bridge, 1 span, 300 ft.; 1 span, 250 ft.; Two Mile Creek viaduct over Kentucky River; viaduct and tower for Roudout Creek bridge; Galveston, Harrisburg & San Antonio bridges, consisting of 27 spans, total length of which will be 4,605 ft.; Blank Creek bridge, 1 span, 98 ft.; Glendrie bridge, 2 spans, 98 and 84 ft.; Grand River bridge, 4 spans, 81 ft. 6 in.; McGregor's Creek bridge, 1 span, 122 ft.; W. B. Wilkins bridge, in Brazil, 2 spans, 185 ft. each; approaches to Rondout Creek viaduct, 120-ft. span; Susquehanna bridge at Sunbury, 10 spans, 195 ft. each. They have also 6 spans of bridges, 167 ft. each, one 103 ft. 6 in., and one 97 ft. 6 in., the names of which were not given.

Iron and Manufacturing Notes.

The Ward Iron Co. has nearly finished its new rolling mill at New Philadelphia, O., and the machinery is being put in.

The Abbott Iron Co. of this city has determined to engage in the manufacture of steel rails, and will at once provide the necessary plant. This company is very extensively engaged in iron manufacturing, and at one time turned out a large product of iron rails; but steel having superseded iron for rails, the Abbott Company have determined to keep up with the new order of things. The expense of preparing for steel-rail making will probably be about $200,000. Thus one more important industry will be established in Baltimore.—*Baltimore Journal of Commerce.*

Mr. Arthur E. Rendle, of New York, has the contract for the skylight, 32 by 300 ft., in the new Union station in Cincinnati. The glazing will be done on his patent system.

The Chattanooga Iron Co. has put its furnace in Chattanooga, Tenn., into blast.

The Crane Iron Co. has put its No. 5 furnace at Catasauqua, Pa., into blast.

The Colorado Coal & Iron Co. is turning out 125 tons of steel rails per day, on a contract for 30,000 tons.

Work in the lower mill of the Pottstown (Pa.) Iron Co. was suspended last week, owing to the breakage of the large new shears, which was recently placed in position. Advantage was taken of the stoppage to clean boilers and make other needed repairs.

A new blast furnace is about to be built in or near Everett, Bedford County, Pa., by Mr. J. B. Williams, of that place, and Dr. J. P. Kimball, of New York. The ores of the Black Valley will be used.

A new concern, known as the Spaulding Iron Co., has been organized to build a large rolling mill at Brilliant, W. Va. The company owns a large tract of coal land near that place.

The Rail Market.

Steel Rails.—Are unchanged. Prices are firm and the tone of the market is steady. Buyers are bidding somewhat low, but sellers are firm, and show no disposition to yield, so that heavy buyers are holding off. There is more inquiry for late delivery, and for such $47 to $48 are quoted. Average sections are quoted $49 to $50, immediate delivery.

Iron Rails.—Prices are firm at from $45 to $47 per ton at mill, with considerable inquiry, especially for light sections.

Rail Fastenings.—Spikes are still quoted $3 to $3.10 per 100 lbs.; fish-plates, $2.50 to $2.70; track-bolts, $3.75 to $4.25.

Old Rails.—Are extremely quiet, with little or no new business reported.

The Iron Strike.

A meeting of Western iron men was held at the rooms of the Iron Association in Pittsburgh last week. It was secret, and the action taken, if any, was not made public. It is reported that they decided to do nothing for a month to come.

Meantime there is little or no change in the situation at Pittsburgh, and there are no signs of giving way on either side for the present, at least.

The Cleveland Bridge & Car Works.

Notice is given by W. H. McCurdy, assignee, and Luther Allen, Trustee, that a meeting of the creditors of the Cleveland Bridge & Car Works will be held on Tuesday, Aug. 29, to consider a proposition for disposing of the car department of the works, when the present contracts shall have been completed, which will be about Sept. 1. A full inventory of the property will be submitted by the assignee. All creditors are requested to be present in person or by proxy.

The North Chicago Rolling Mill Co.

The Chicago *Industrial News* thus describes the new works of the North Chicago Rolling Mill Co. at South Chicago: "The three furnaces, Nos. 5, 6 and 7, are making 1,000 tons

a week each of Bessemer pig. The fourth furnace, No. 8, will be ready to blow in in about three weeks; 750 men are employed in this department. All the iron made by the above three furnaces is converted at once into steel by the direct metal process. Four hundred men are employed in the converting works, the capacity of these latter being 4,000 tons of Bessemer steel a week. The blowing engines in this department are the largest of the kind in this country, and second largest in the world, ranking next to Krupp's works at Essen, Germany. They are two in number, and about 1,100 h. p. each. There are also in these works three 10-ton converters, one central ladle crane, two auxiliary cranes, 15 tons each, and four 8-ton ingot cranes, which are used in the converting works. In the repair shop attached to the converting department, the drying of ladles and converter bottoms with gas is giving the best possible results. The bottom or ladle is placed under a hood, and a stream of gas mixed with air ignited in an Argand burner is blown over its surface, giving a speedy and thorough drying. The rail mill department is affording employment to 225 men. The rails are made with entirely new and improved machinery of the largest kind, both in size and power, the aim being to make as large an output with as small a number of men as possible. The company expect to make 3,500 tons of finished rails per week. The ingots are received hot from the steel works, charged in four Siemens regenerating gas furnaces, with bed 28 ft. by 8 ft. 4 in., being about the largest furnace of the kind in the country. The blooming train is a three-high, 40-in. train driven by a horizontal engine, cylinder 42 by 48, fly wheel 53 tons. In this train is done the blooming and roughing, the work of two ordinary trains, and from it the piece is carried on reversible spools to the finishing train, 135 ft. distant. This is a two-high, 26-in. reversing train driven by a double compound reversing engine with two high-pressure cylinders 42 by 42 in., two low-pressure cylinders 72 by 42 in., with a power of 6,000 horses, the largest engine of its kind in the world; it is connected directly with the roll train through a 16 in. shaft, and reverses with every pass the rail makes. The reversing of this engine is accomplished by means of a hydraulic cylinder. The rail is finished in three or four lengths from a 12-inch ingot in 18 passes in these two trains. The rail is carried on reversing spools to the saw, where it is cut into three or four 30 ft. lengths. It is then cambered by hydraulic curving machines, a recent invention of Mr Kriele, Chief Engineer of the company. The completing task takes the rail to the cooling bed, where it is cold-straightened, drilled and shipped. The works cover 75 acres and employ 2,000 men."

Sold his Pass.

Charles P. Rector, formerly Agent of the Chicago & Alton at Glasgow, Mo., before he left his position, secured, through Mr. E. A. Ford, General Passenger Agent of the Vandalia and Pan-Handle Lines, passes for himself and wife from St. Louis to Pittsburgh and return. The return portions of the passes have been placed on sale in Frank's scalping office at Wheeling, and Mr. Ford desires that railway officers be warned against granting favors to said Rector.

Pilots.

The Port Jervis *Gazette* predicts, on the authority of a "well-known railroad man," that trains on the railroads where traffic is the heaviest will soon have to be furnished with a pilot. He will be stationed somewhere about the front of the locomotive, will have means of prompt communication with the engineer, and his sole business will be to keep a lookout ahead for signals, other trains, obstructions, etc., allowing the engineer to give his whole attention to the management of his engine.

A Train Wrecker Arrested.

On the 24th of last month a passenger train was wrecked on the Athens Branch of the Georgia Railroad near Lexington. The affair was evidently no accident, a very large stone having been found on the track where it had, without doubt, been carefully laid for the purpose. As soon as practicable Detective Jones, the special detective in the service of the railroads, was notified by wire. Jones repaired to Lexington and found a clue to the identity of the perpetrator of the outrage. On doing so he put his men on the trail and returned himself to Atlanta to look after another case. The theory which he had formed and in the pursuit of which he had engaged his assistants before quitting Lexington proved to be correct. It was discovered that the criminal was a negro boy about sixteen years of age, named Sam Barton, and that he had secreted himself in the country at a point nine miles from Lexington. At that place he was arrested and taken back to town. Last Monday Barton stood his trial before a justice of the peace, who committed him to jail in default of bond. Detective Jones thinks the employers of Barton advised him to run away from Lexington when they saw him in danger of being discovered.—*Atlanta (Ga.) Appeal.*

New York & Brooklyn Bridge Contracts.

The trustees of the New York & Brooklyn (East River) Bridge have awarded contracts as follows: For viaduct and buildings in approaches on New York side to the Pittsburgh Bridge Co. for $117,117.50; for viaduct and approaches on Brooklyn side to Jones & Benner, of Philadelphia, for $185,876. These awards are conditioned upon the consent of contractors to the insertion in the contract of a money penalty for failure to complete the work within the specified time.

The contract for wire rope for the traction of cars over the bridge was awarded to the New York Wire Rope & Wire Co. at 9⅝ cents per pound for crucible steel wire, to be guaranteed for one year.

The contract for the rope driving machinery was awarded to the Dickson Manufacturing Co. at Scranton, Pa., a time penalty to be attached to the contract. The bid of the Dickson Co. was $17,500.

Yankee Notions in New English Passenger Coaches.

The London *Times* contains a description of the new "carriage" which the London & Northwestern Railway Company has introduced into its fast passenger service between London and Liverpool for the accommodation of first-class passengers. It is described as a vastly improved system of railway saloon, the adoption of which has mainly been due to the protests of the very large and increasing traveling public which is constantly visiting Europe from beyond the Atlantic.

"The carriages" says the *Times*, "are certainly the most complete and comfortable yet built, and they have this other and material advantage that they will be open to any passenger who have paid ordinary first-class fares. The saloon, which is 76 ft. (!) in length, and has a gangway running throughout, is equally divided between the accommodation for ladies and family parties, and gentlemen; and at the extreme end of each compartment is found a well-appointed lavatory, together with all the other necessary accommodation, the absence of which frequently makes a long railway journey, with unfrequent stoppages, a matter of absolute terror. Between the two compartments there is a place for luggage, and a small closet in which an attendant—who may be summoned instantly by electric bell to any part of the saloon—prepares tea, coffee, and other light refreshments for the passengers, of whom each saloon will carry 18 ladies and 21 gentlemen. The lighting apparatus is fitted with burners consuming compressed gas made from oil, and the necessity of using foot-warmers is obviated by an ingenious method of hot-water pipes running under the seats and round the compartment. The upholstery leaves nothing to be desired."

Steamboating from Philadelphia to La Crosse.

The "City of Alma," the iron-clad steamer about which so much has been said, reached LaCrosse from Philadelphia last evening. The steamer is very different in point of marine architecture and propelling power from any other boat on the river. The hull is made of iron ⅜ in. thick. Its dimensions are: length, 110 ft.; width, 20 ft.; depth of hull, 5 ft. She draws 2½ ft. of water without ballast. In making the trip around the Atlantic coast she was heavily ballasted. The boilers are down in the hull, and the fireman's pit is another purgatory. The engines are novel and reported very powerful, the cylinders being set on an incline of 20 degrees. The "City of Alma" is a propeller and will make 12 miles against the current. She will be entered in the up-river trade, making the same trips now being made by the "Belle of Bellevue." She is commanded by Capt. Richtman, who proposes to build on a commodious cabin and start out in business in 30 days. The trip from Philadelphia was made in 46 days.—*La Crosse (Wis.) Republican, Aug.* 15.

OLD AND NEW ROADS.

Baltimore & Ohio.—This company is about to build a new passenger station in Chicago on land leased from the city near the Exposition building.

Bangor & Katahdin Iron Works.—Track is now laid on this road to Foster Brook, Me., 10½ miles northward from the late terminus at Brownville, and 16½ miles from the Bangor & Piscatagins road at Milo. About three miles are to be laid to reach the Katahdin Iron Works.

Boston & Albany.—Within a few days the exchange of this company's bonds for the Massachusetts state stock has been completed, the company handing over to the treasury of the commonwealth $3,858,000 in face value of its 5 per cent. 20 year bonds, and receiving in exchange 24,115 shares of the company's capital stock. The company also paid the state $400 in money, to equalize the exchange. The interest on the bonds is payable Oct. 1 and April 1. By this exchange the interest which the state has always held in the directory of the railroad ceases and the five state directors lose their positions. This leaves the board with only eight directors, and as it is not proposed to fill the vacancies until the annual meeting in February, the present board will necessarily have to act unanimously upon any questions submitted to them, since the by-laws of the company provide that eight directors shall constitute a quorum. With this transaction closes the active but profitable connection between the railroad and the state which began nearly half a century ago, when the state aided in the construction of the Western Railroad, now a portion of the Boston & Albany.

Boston & Maine and the Eastern.—No further progress is reported in the negotiations for the lease of the Eastern Railroad to the Boston & Maine Company. Probably nothing will be done until the meeting of the Boston & Maine directors next month, when a new proposition from that company is expected. The chief owners of Eastern stock are said to be so confident of a steady improvement in the profits of their road that they are content to hold it as it is rather than accept a union on terms that do not suit them.

A report was circulated in Boston this week that the Maine Central Company had made an offer to lease the Eastern Railroad. It was promptly denied, and, indeed, seemed hardly credible in view of the fact that the Eastern controls a majority of the Maine Central stock.

Buffalo, Pittsburgh & Western.—This company's statement for July, and the seven months ending July 31, is as follows:

	July.	Seven months.
Earnings	$82,723	$465,879
Expenses	39,778	219,785
Net earnings	$42,945	$246,094
Per cent. of expenses	48.1	47.2

For the seven months there was an increase of $112,076, or 32 per cent., in earnings; a decrease of $30,065, or 12 per cent., in expenses, and an increase of $142,141, or 136 per cent., in net earnings.

Buffalo, New York & Philadelphia.—The Buffalo *Express* says: "This road has made great strides forward during the present season in the way of general improvement of its line. From Buffalo to Emporium it now has one of the best-graded, best ballasted road-beds anywhere to be found. There are, of course, steep grades. Keating Summit is 1,300 ft. above Buffalo; but the only place where heavy freights now need a pusher is the approach to Keating from the south, where the grade reaches 110 ft. But the sags and sinks in the bed have been smoothed out this summer; the trestles are gradually being filled in; some eight or ten miles of new sidings have been laid, and a score more of minor improvements made. Freight business is on the increase, and the road is in shape for it. The mammoth coal trestles and pockets which Messrs. Craigie, Rafferty & Youmans are building on the company's property at the foot of Michigan street—the contract reaching $60,000—are nearly ready for use. The company has a traffic arrangement with W. L. Scott of Erie, whereby a large hard coal tonnage will be handled next year at these new pockets. The road is also preparing to handle more grain freight this year than in any season heretofore. The standard freights of the road are soft coal—from the Clermont Branch—lumber, hard wood and tanbark. The Buffalo firm of G. D. Briggs, F. H. Goodyear, Rumsey & Co., and Root & Keating, with their many sawmills along the line, tanneries, and heavy coal shipments, give the road a very heavy local traffic. The opening of the canning establishment at Franklinville is just now giving the road the unusual freight of about one ton of blackberries a day. By way of preparation for its constantly increasing business the road is getting new rolling stock. Five hundred coal-cars are building for its use, and part of them are already delivered. Nine new heavy-draught locomotives are under construction for the road, and also 10 new passenger coaches. It is likely that with the opening of the Genesee Valley road, rolling-stock will be in part furnished to it from the present equipment of the Emporium line, the lighter engines and old cars being replaced by the new ones. A third rail has been laid from Eldred to a point near Portville, at the Allegheny Central crossing, a distance of about eight miles. About half a mile more of the third rail is needed to complete the connection, whereby Bradford, Eldred & Cuba trains can run over the Buffalo, New York, & Philadelphia track—the third rail converting it into a narrow-gauge—till they strike the 3 ft., Allegheny Central road. This scheme was projected when the Allegheny oil field was first developed. The transfer of the seat of oil interest to the Warren and Forrest County fields has somewhat lessened the prospects of this enterprise.

"In conjunction with the Western Union Telegraph Company, the Buffalo, New York & Philadelphia will this fall rebuild its entire telegraph line. Three thousand cedar posts, extra length and assorted to 6 in. diameter at the summit, are already ordered from Canadian contractors. There are now two wires on the line, one belonging to the road, the other to the Western Union. The road supplies the material and the telegraph company sets the poles and hangs the wires. It is predicted that the increase of business will soon make a third wire necessary."

Burlington, Cedar Rapids & Northern.—A dispatch from Des Moines, Ia., says: "Some time ago the Burlington, Cedar Rapids & Northern Railroad Company leased that portion of the Central Iowa road north of Northwood. The people there are opposed to the transfer, and commenced proceedings before the Railroad Commissioners to compel the Central Iowa to operate the road in accordance with its charter and the provisions of the tax aid given by the people. The case involved several new features in the construction of the Iowa statutes."

Central of New Jersey.—In the suit recently brought by Vanderbilt & Hopkins to compel Receiver Little to accept a very large quantity of ties and lumber under a contract made by the late Receiver Lathrop, the Vice-Chancellor of New Jersey has dismissed the petition. The opinion is a very lengthy one, and says substantially that the real question is whether or not a railroad corporation which is in the hands of the Court of Chancery can be legally charged with any burden not sanctioned by the Court. When the orders are received in the aggregate, and it is seen that in a single year they amount to over $500,000, over one half of which remains to be delivered, and when it is seen that in most instances the orders neither state price nor designate a time or place of delivery, and that the petitioners never bound themselves to furnish the material ordered, but left themselves free to furnish or not as their interest might dictate, it is extremely difficult to believe that the orders were understood to be constitutionally completed binding contracts. It was probably intended as a mere notification of how much material would probably be needed in the future, so as to give them an opportunity to furnish it in case it might be required. The petitioners were under no obligation to furnish it nor the Receiver to take it unless he gave a further special order designating the price and time of delivery.

Chicago & Alton.—In the suit begun by the Massachusetts Mutual Life Insurance Company as holders of a second mortgage on the former Chicago & Illinois River road, now owned by this company, the United States Circuit Court has set aside the exceptions filed to the bill, and the suit still proceeds.

Chicago & Atlantic.—Track on this road is now laid from the connection with the Chicago & Western Indiana near Hammond, Ill., east by south to Crown Point, Ind., about 25 miles. Tracklaying is progressing at several other points on the line, and on the eastern end it has reached Kenton, O., 25 miles west of the starting point at Marion.

Chicago, Burlington & Quincy.—A dispatch from Boston, Aug. 23, says: "This company has made a traffic contract with the Denver & Rio Grande Railroad, subject to the breaking up of the present Colorado pool.

Chicago, Milwaukee & St. Paul.—With the completion and opening of the new Council Bluffs line, this company's system now includes 4,350 miles of road.

A dispatch from Milwaukee, Aug. 15, says: "Some of the largest sales of land ever made in this city, and probably the largest ever made in one day in the West, were completed here to-day. The sales were of the Minnesota lands of the Chicago, Milwaukee & St. Paul Company. The first sale, which has been pending for several weeks, was of 100,000 acres in Pipestone and Rock counties in Southern Minnesota, to an English syndicate, made up of a number of English capitalists, who intend to establish colonies of their countrymen upon the land. The price paid for this land was $4.50 per acre. The next sale was of 40,000 acres in Rock County, which comprises all of the company's land in that county, to James Thompson, a banker of Davenport, Ia., who will at once throw the lands upon the market. The price paid for this lot was a trifle less than $5 per acre. The other sales, though not closed considered as virtually settled, are of 55,000 acres, being the last of the company's lands, in Minnesota; and include sections in Faribault and Martin counties. It is understood that the price to be paid for the land is $5 per acre. A. Boyson, of this city, Danish Vice-Consul, is the party who is negotiating for the last lot."

Norfolk & Western.—This company's statement for July and the seven months ending July 31, is as follows:

	July.	7 months
Earnings	$191,535	$1,216,494
Expenses	106,793	727,292
Net earnings	$84,742	$489,202
Per cent. of expenses	55.8	59.8

For the seven months there was an increase of $47,990, or 4.1 per cent., in gross earnings; an increase of $75,622, or 11.6 per cent., in expenses, and a decrease of $27,632, or 5.3 per cent., in net earnings. The expenses include the estimated proportion of yearly taxes.

Cincinnati, Hamilton & Dayton.—At a meeting of the board in Cincinnati, Aug. 22, President Jewett was authorized to negotiate the sale of $500,000 of the new preferred stock recently authorized.

The board also ordered preparations made for the extension of the second track to Hamilton, and the purchase of 500 freight cars.

The company has given notice of the termination of the pool with the Cincinnati, Indianapolis, St. Louis & Chicago on business between Cincinnati and Indianapolis.

Coudersport & Port Allegheny.—Track on this road is now laid from the junction with the Buffalo, New York & Philadelphia road at Port Allegheny, Pa., eastward 13 miles, leaving only a short distance to reach Coudersport. The track is laid on the old road-bed graded several years ago for the Jersey Shore, Pine Creek & Buffalo road, which has been leased by this company.

Corning, Cowanesque & Antrim.—The Fall Brook Coal Company, which owns this road, has decided to extend the Cowanesque Valley Branch from Elkland, Pa., to Harrison Valley.

Danbury & Norwalk.—The extension from the old terminus at South Norwalk, Conn., to deep water at Wilson's Point is completed and opened for traffic. This extension is about one mile long, and gives the road a connection with the boats running on Long Island Sound.

Houston & Texas Central.—Track on the Northeastern Branch is now laid to the Texas & Pacific crossing at Terrell, Tex., 30 miles northeast from the main line at

Garrett, and 13 miles beyond the late terminus at Kaufman. Work on the grading is being pushed toward Texarkana.

Hudson Tunnel Railroad.—On the afternoon of Aug. 20, the bulkhead at the New York end of the tunnel under the Hudson River, which is now 65 ft. out from the caisson, gave way, letting the water in. Fortunately the men at work had a few minutes' warning, which enabled them to escape through the air-lock. The exact damage done cannot be told until the water is driven out again.

Illinois Central.—A dispatch from Chicago says: "As a result of the recent interview in the East between presidents Ackerman, Cummings and Vanderbilt, it has been decided that the Illinois Central Railroad shall give up its long contest with the city for two blocks of land on the lake front, and at once begin the erection of a depot where the ruins of the former depot, burned in the great fire of Oct. 9, 1870, still stand. It will cost over $500,000 and will be completed in 1883. It will be jointly occupied by the Illinois Central, the Michigan Central, the Baltimore & Ohio and the New York, Chicago & St. Louis railroads."

Indianapolis & St. Louis.—The question of confirming the recent sale of this road was to come up before the United States Circuit Court, Aug. 25. Council for the second-mortgage bondholders have filed a petition to become parties to the record. Confirmation of the sale will be opposed upon the ground that the trustee foreclosed the mortgage without first having a written demand of the the holders of the bonds for such action, as required by law.

Lake Shore.—The application for a charter for this road will be renewed, and it promises to be quite a question in New Hampshire politics this fall. The road is to run from Alton Bay, N. H., to Weirs, about 17 miles, along the shore of Lake Winnipiseogee.

Lewiston & Field's Creek.—This company has been incorporated in West Virginia to build a railroad from Lewiston, on the Kanawha River, to the Upper Forks of Field's Creek, about 10 miles. The corporators are A. E. Cabell, S. L. Goshorn, James D. McConihay and W. R. McConihay.

Louisville, Evansville & St. Louis.—It is reported that the Boston syndicate, which owns a controlling interest in this road, is negotiating for a sale to parties interested in the Chesapeake & Ohio. It is also reported that an offer has been received from the Pennsylvania Company.

The securities of the Louisville, Evansville, & St. Louis Company consists of $3,900,000 first mortgage 7 per cent. bonds; $1,000,000 second mortgage 7 per cent. bonds, all of which are issued; $3,000,000 income bonds, of which about $2,500,000 are issued, and $6,000,000 of stock, of which $4,500,000 are issued. These securities will probably be listed at the stock exchanges in New York and Boston next month.

Marietta & Cincinnati.—A dispatch from Cincinnati, Aug. 23, says: "In the hearing of the Marietta & Cincinnati Railway case to-day, the Court said that it was not satisfied with the degree of evidence that the requisite two-thirds of the stockholders and secured creditors had consented to the plan of capitalization and reorganization, and that it would appoint a special master to take evidence and report on this point, but that in the meantime the hearing of other issues in the case would continue."

Marietta & North Georgia.—The grading of this road is now completed to Jasper, Ga., 50 miles from Marietta, and tracklaying is now in progress from the present terminus at Ball Ground to Jasper. From Jasper north to Ellijay, 25 miles, a large part of the grading is done, and on the 40 miles from Ellijay to Murphy, N. C., over half the grading has been finished.

Memphis & Charleston.—At the special meeting in Huntsville, Ala., Aug. 22, about $4,000,000 stock was represented. The proposition to consolidate with the East Tennessee, Virginia & Georgia Railroad was unanimously declined. The directors will appoint a committee to meet directors of the East Tennessee, Virginia & Georgia road and negotiate terms of settlement of the lease claimed by this road, so as to place the control of the Memphis & Charleston road in the hands of the stockholders. It was stated by Vice-President Jere Baxter and Col. A. S. Colyar that Gen. Thomas, President of the East Tennessee, Virginia & Georgia road, had assured them that a proposition from the Memphis & Charleston road to pay $400,000 for the lease would be accepted. The following resolution was unanimously adopted:

"Our board of directors are empowered to issue additional stock and dispose of the same under the direction of the board to such an amount and at such price as the board may direct, said board of directors to appoint a commission which under the direction of the board, will have the power to make the stock issued common stock, to determine how and in what manner the said new stock shall be voted, but in no event to interfere with the right of the present stockholders as to dividends unless the same shall exceed 6 per cent. per annum, and in no event is the stock to be issued to exceed in amount the stock now outstanding. Such outstanding stock will then become preferred stock to the extent of 6 per cent. per annum, and the earnings of the company in excess of the 6 per cent. on the preferred stock shall be applied to the common stock until they reach 6 per cent., and then any surplus to be equally divided between the preferred and common stock, providing the present stockholders shall have the right for a reasonable limited time to purchase said new stock in proportion to their present stock at prices to be fixed by the board of directors."

It was also resolved that the directors have authority to issue the 478 7 per cent. first-mortgage bonds which the company has the right to issue, but which were never issued, to be applied to liquidating the floating debt of the road or such other interest of the road as the circumstances may demand. It was further resolved, in the event of cancellation of the lease, that the directors make such amicable arrangement with the East Tennessee, Virginia & Georgia Railroad Company as may effect an interchange of business between the two roads.

It is understood to be not at all certain that the East Tennessee Company is willing to surrender the lease.

Missouri, Kansas & Texas.—The tracks of this road, the Texas & Pacific and the Houston & Texas Central in Dallas, Tex., have been connected by short spurs, making a sort of belt line around the city.

Missouri Pacific.—The tracks of the Kansas City & Eastern Division, from Independence, Mo., to Lexington, 32 miles, were changed from 3 ft. to standard gauge on the night of Aug. 19 and the morning of Aug. 20. A standard-gauge train passed over the line on the evening of Aug. 20. A connection with the Lexington & Sedalia Branch is being made in Lexington.

New York & New England.—The Boston *Advertiser* of Aug 17, says: "The Treasurer of the company mails (under date of Aug. 16) to subscribers for the 34,750 shares of stock lately purchased from the state of a circular letter, informing them of the individual allotment of shares, and giving notice that 20 per cent. of the amount of subscription will be due and payable Aug. 26. The option of paying the whole is offered, and stock certificates will issue upon full payment. Many small subscribers have signified a purpose to pay the entire subscription, $50 per share, at once. Where only 20 per cent. is paid, the balance will be due in four equal instalments, at intervals of not less than one month each. It is probable that the calls will be issued monthly. Precisely how many of the 34,750 shares have been taken had not been determined this morning, but it was estimated that not more than 1,500 shares would remain to be disposed of by the directors. The company will realize from the sale of this stock $1,737,500, of which about $1,000,000 will be applied to the cancellation of a burdensome floating debt. The rest will be used to meet unpaid contracts and obligations not fully provided for by the first-mortgage bonds. A surplus will remain after liquidating these debts, which will be turned into the general treasury. The company will thus be placed in a much better financial condition than has been its fortune for some years."

Nashville, Chattanooga & St. Louis.—This company makes the following statement for July, the first month of its fiscal year:

Earnings	$160,990
Expenses (58.2 per cent.)	93,706
Net earnings	$67,284
Interest and taxes	46,287
Surplus	$20,997

As compared with July of last year, there was an increase of $10,560, or 6.6 per cent., in earnings; a decrease of $6,098, or 6.1 per cent., in expenses, and an increase of $16,658, or 32.9 per cent., in net earnings.

Northern Pacific.—Track on the Yellowstone Division is now laid to Billings, Montana, 39¼ miles beyond the last point reported, 101½ miles west of Forsythe, and 916 miles from St. Paul. The gap in the main line is now only a little over 500 miles.

On Sept. 1 the company will have 1,553 miles of completed road in operation, and 895 under construction.

President Arthur has appointed commissioners to examine the 250 miles of the company's newly completed track, of which 50 miles are in Idaho and Western Montana, 175 miles in the Yellowstone Valley in Montana, and 25 miles in Wisconsin and Minnesota. The commissioners for the Western Division are as follows: Captain Henry Blackstone, James C. Reed, Horace B. Fry; for the Eastern Division, Arthur B. Johnson, John B. Sanborn, of Newport, H. W. Scott, of the Portland *Oregonian*. It is estimated that a month or six weeks will elapse before the commissioners can examine and accept the 250 miles of track. When this is done, the consolidated 6 per cent. mortgage can be further issued to the extent of $6,250,000, or $25,000 to the mile.

The board of directors, on recommendation of the Finance Committee, has postponed the consideration of a dividend on the preferred stock till after the annual meeting of the stock holders, which will take place Sept. 19. It is thought that a proposition authorizing a dividend will then be submitted to the stockholders for approval or rejection.

Pennsylvania.—Contracts have been let for the grading of the new branch from Frazer, Pa., to Phoenixville. It will be about eight miles long.

The road-bed of the North & West Branch road from the present terminus at Nanticoke, Pa., to Wilkesbarre, seven miles, is finished, and tracklaying will soon be begun. Until the track is laid trains will be run over the Lehigh Valley tracks into Wilkesbarre. It is said that the road will be extended to Pittston.

This company's statement for July shows for all lines east of Pittsburgh and Erie, as compared with July, 1881:

An increase in gross earnings of	$368,732
An increase in expenses of	212,610
Net increase	$156,122

For the seven months ending July 31, as compared with the corresponding period in 1881, the same lines show:

An increase in gross earnings of	$1,465,741
An increase in expenses of	2,116,651
Net decrease	$650,910

For the seven months of 1882 all lines west of Pittsburgh show a surplus over all liabilities of $215,690, being a decrease of $1,543,181, as compared with the corresponding period of 1881. This makes a total decrease of $2,194,091 for all the lines for this year.

Philadelphia & Reading.—The Receivers' statement for July and the eight months of the fiscal year from Dec. 1 to July 31 is as follows:

	July.		Eight months
Railroad Co.:	Gross.	Net.	Net.
Railroad traffic	$1,888,443	$950,436	$5,469,847
Canal traffic	90,004	48,929	41,703
Steam colliers	42,155	*2 599	183,013
Richmond barges	5,857	*2,134	*14,382
Total R. R. Co.	$2,026,459	$994,632	$5,680,181
Coal & Iron Co.	1,422,331	113,675	439,741
Total	$3,448,790	$1,108,307	$6,119,922

* Loss.

Expenses do not include interest or rentals, the net earnings given being the sums from which those charges are to be paid.

A comparison of net earnings is as follows:

	July.		Eight months.	
	1882.	1881.	1882.	1881.
Railroad Co.	$994,632	$925,484	$5,680,181	$5,247,907
Coal & Iron Co.	113,675	165,577	439,741	531,595
Total	$1,108,307	$1,091,061	$6,119,922	$5,779,502

For the month there was an increase in the total net earnings of $17,246, or 1.7 per cent.

For the eight months the Railroad Company gained $432,184, or 8.2 per cent.; the Coal & Iron Company lost $91,854, or 17.3 per cent., leaving a total gain of $340,330, or 5.9 per cent.

Pittsburgh, Bradford & Buffalo.—The Pittsburgh *Railway Reporter* of Aug. 19 says: "The Pittsburgh & Western Railroad Company, narrow gauge, which purchased the Parker, Karns City & Butler Railroad some months since, on Friday last purchased a controlling interest in the Pittsburgh, Bradford & Buffalo Railroad, running from Foxburg, Clarion County, to Kane, with a branch to Clarion borough. The latter road was owned principally by C. W. Mackey, John W. Welsh and J. M. Dickey, of Franklin, James Bennett and J. W. Rowland, of Emlenton. All of those named, except Capt. Mackey, disposed of their entire interests on terms not made public, and Capt. Mackey sold a part of his interest, but will remain in the position of President and Solicitor of the company. The line to connect the railroad with the Parker & Karns City Road is graded from Parker up the west side of the river to Foxburg, where it will cross to connect with the former. The link between Butler and Harmony, to connect the Pittsburgh & Western with the Parker, Karns City & Butler Railroad, will soon be completed."

Red River Valley.—This company has been organized to build a railroad from the western line of the state of Arkansas, near Walnut Bayou, along the Red River by White Oak Shoals, Homan and Garland City to the Louisiana line, where connection will be made with a line to Shreveport. The length of the road in Arkansas will be 85 miles.

Sabine & East Texas.—This road is now completed from Beaumont, Texas, northward to Rockland, 75 miles, and trains will soon run through to Rockland, which is 20 miles beyond the old terminus at Woodville. South of Beaumont track has been for some time laid to Taylor's Bayou, 16 miles, and the grading is finished to Sabine Pass, 14 miles further. Tracklaying on this section is in progress. The road is controlled by the Texas & New Orleans Company, with whose line it connects at Beaumont.

St. Joseph, Kansas City & Arkansas.—This company has been organized to build a narrow-gauge road from Joplin, Mo., south to Van Buren, Ark., about 150 miles.

St. Joseph & Western.—It is reported that negotiations are in progress for the transfer of the lease of this road from the Union Pacific to the Missouri Pacific Company. The line extends from St. Joseph, Mo., to Grand Island, Neb., 252 miles. The change would probably make little difference to the St. Joseph & Western bondholders, who are not likely to get much from either company.

St. Louis, Ft. Scott & Wichita.—A large force is now employed on the heavier portions of the grading of this road from Eureka, Kan., to Eldorado. From Eldorado to Wichita, about 30 miles, contracts for the grading will soon be let.

St. Louis, Iron Mountain & Southern.—The court has refused the application of the Batesville & Brinkley Company to restrain this company from building a proposed branch, holding that the Iron Mountain Company has full authority to build branches in Arkansas as successor to the charter of the old Cairo & Fulton Company, and that the proposed branch is not a line parallel to the Batesville & Brinkley road within the meaning of the law.

St. Paul, Minneapolis & Manitoba.—On the new line from Grand Forks up the western or Dakota side of the Red River, track is now laid to Bathgate, 12 miles northward from the late terminus at Dimock, and 72 miles from Grand Forks.

On the Devil's Lake Branch the track is now laid from Ripon, Dak., (which is on the Durbin Extension, 72 miles northwest of Breckenridge), northwest 30 miles to Hope, which will probably be the winter terminus.

On the St. Cloud & Duluth Branch track is now laid from St. Cloud, Minn., east by north to St. Francis River, 18 miles. The grading is nearly done for 48 miles further, to Hinckley on the St. Paul & Duluth road.

San Joaquin & Sierra Nevada.—This road is now completed and in operation from Brackville, Cal., on the South Fork of the Mokelumne, eastward through Woodbridge and Lodi to Lockeford, a distance of 35 miles. It is reported to be already doing a good business, and carrying large quantities of wheat. At Brackville a large wharf has been built, where freight is transferred to steamboats and barges. The shops of the road are under construction at Woodbridge.

South Carolina.—This company is building a very large new wharf and freight sheds in Charleston, S. C., which are now approaching completion. The extension of the road to the wharf is also nearly finished.

Tehuantepec.—Mexican dispatches state that an official decree declaring that the forfeiture of the Tehuantepec Railroad concession has been published in the city of Mexico. It orders the $100,000 placed by the company on deposit as a guarantee to be transferred to the Mexican treasury, and holds the company liable to a suit for damages.

Tennessee & Sequatchie Valley.—Track is now laid to a point seven miles beyond the late terminus at Grand View, and 12 miles from the junction with the Cincinnati Southern at Spring City, Tenn. A short distance will bring the road to the coal banks.

Tennessee Southern.—At the annual meeting in Memphis, Tenn., Aug. 15, it was decided to put a corps of engineers in the field at once, and let contracts for construction south from Memphis toward Vicksburg as soon as practicable. It is proposed to open this line from Memphis to New Orleans within the present fiscal year. The question of consolidation with the Memphis & Vicksburg, the Mississippi Valley & Ship Island and the New Orleans & Mississippi Valley companies was postponed for 60 days.

Thames River Bridge.—The New Haven (Conn.) *Register* says: "It may be said that the railroad bridge over the Thames has become a fixed fact, and the excitement that arose among New London people regarding it last winter has largely died away. The engineers have located its site, and it is understood that work on it will soon commence. It is said that the survey shows 100 ft. of mud and water on the proposed site, and that the bridge will cost $3,000,000 at the lowest. It is, perhaps, noteworthy that the surveyors and officers of the Thames Bridge Company occupy part of the office vacated by the New London Northern Railroad Company, which was the strongest opponent of the bridge scheme."

West Pennsylvania & Shenango Connecting.—This company has been organized to build a railroad from Coalville, Pa., on the Shenango & Allegheny road, southward to Butler, the terminus of a branch of the West Pennsylvania division of the Pennsylvania Railroad. The road be 22 miles long, and will be owned jointly by the Shenango & Allegheny and the Pennsylvania Railroad companies.

Wheeling & Lake Erie.—A letter from Norwalk, O., says:

"The Wheeling & Lake Erie Railroad accomplished in the month of June between Massillon and Zoar station one of the most rapid pieces of railroad construction ever accomplished in this country. Between these stations the distance is 18 miles. In the 30 days of that month 47,000 lineal feet of piles were driven, 1,000,000 of trestles were framed and placed, and 1,600 lineal feet of truss bridging completed on this section. Not a foot of this timber was on the ground at the beginning of this time. To the very efficient management of Mr. C. A. Wilson, Assistant Chief Engineer, who had the direction and pushing of this work, assisted by the energy and ability of Messrs. Graham & Jenkins, of this city, who were the contractors for the piling and trestle work, and to the ready co-operation of the Smith Bridge Company, of Toledo, is mainly due the successful accomplishment of this remarkable piece of work. Since, track has been laid between these points. Ballasting is in progress, and the road on Aug. 25, will be opened for regular traffic from Toledo to Zoar station, where connection is made with the Cleveland & Marietta road recently acquired, thus making another all-rail route from the lakes to the Ohio River."